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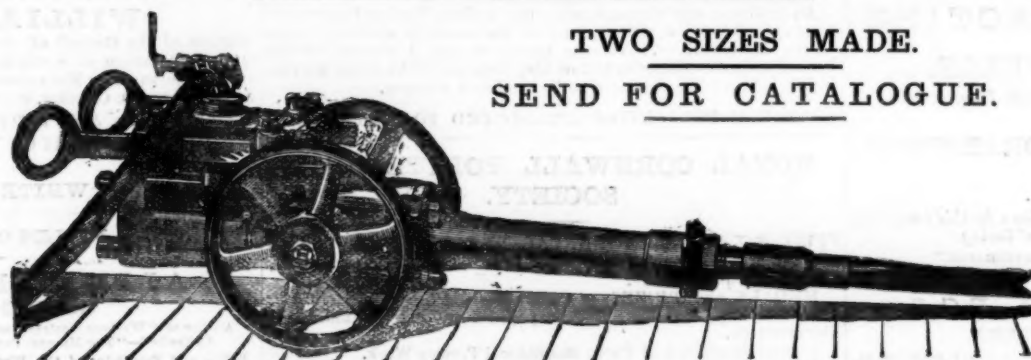
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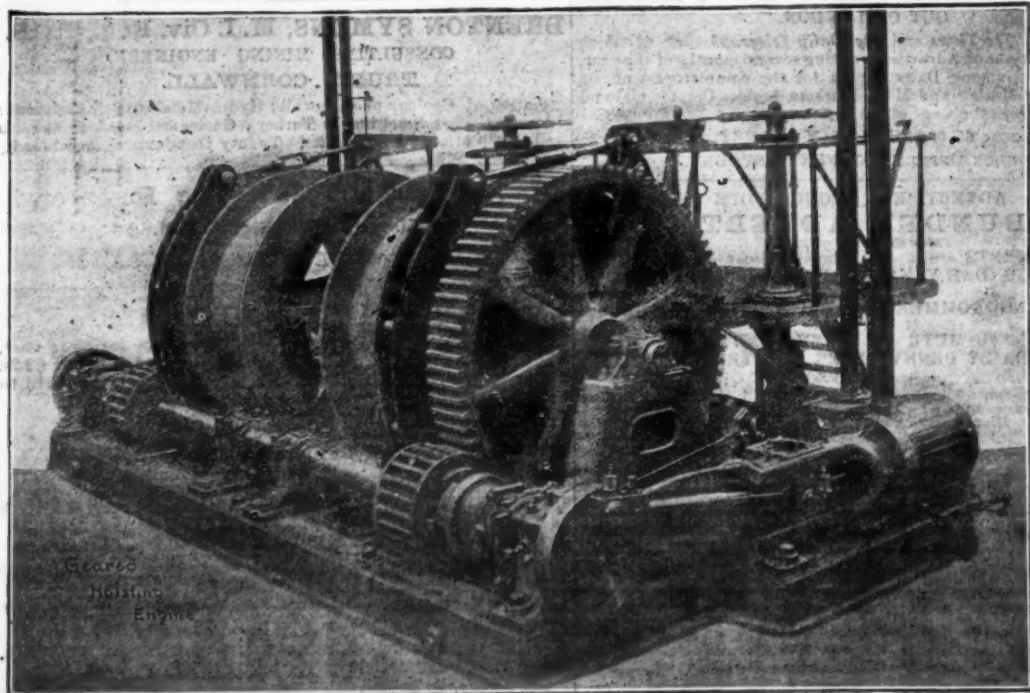


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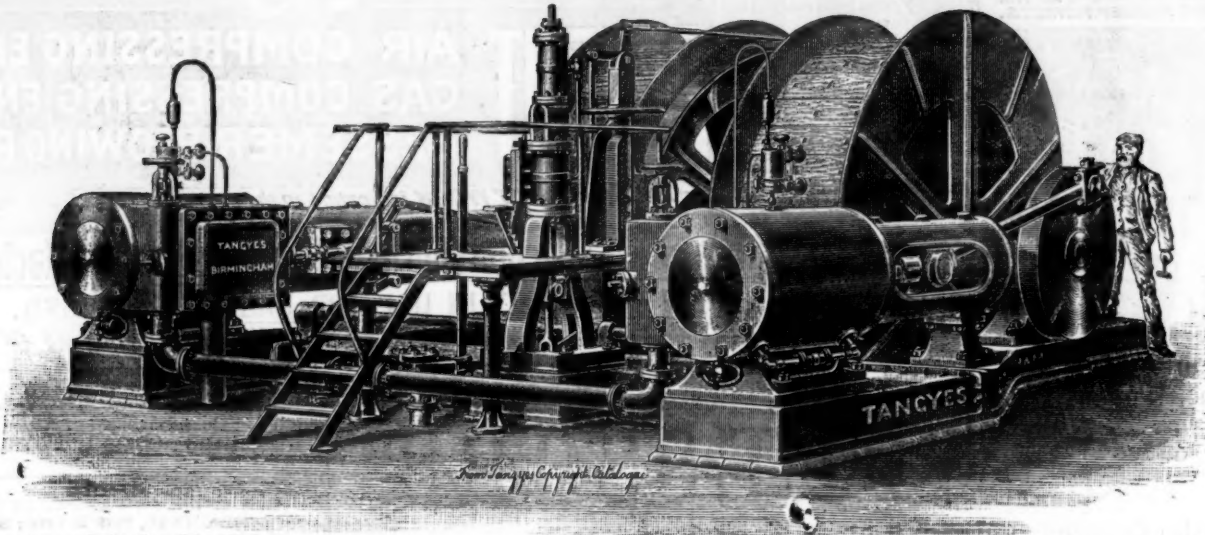
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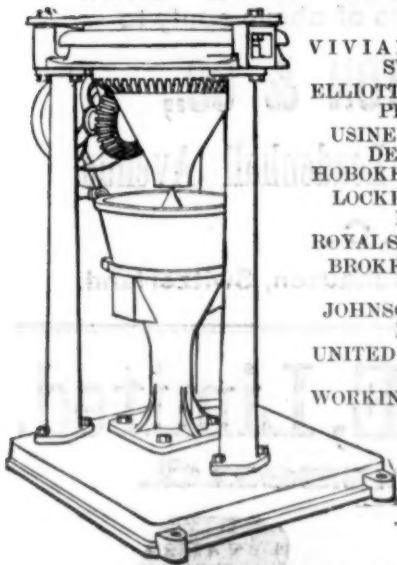
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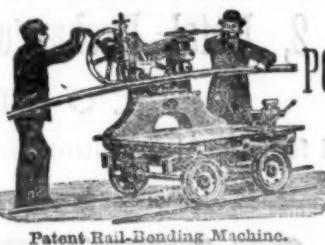
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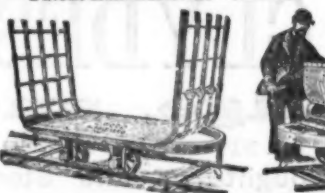
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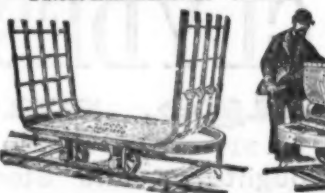
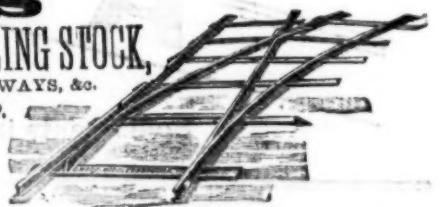
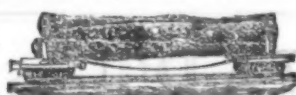
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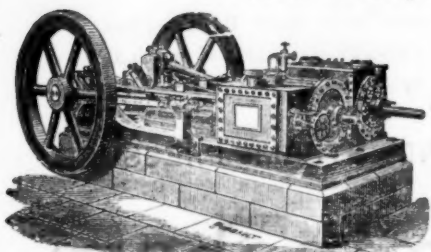
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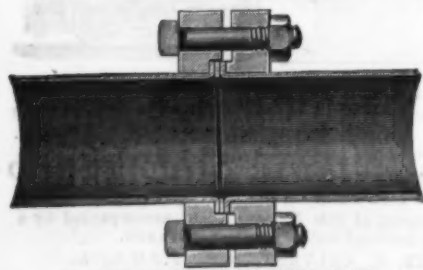
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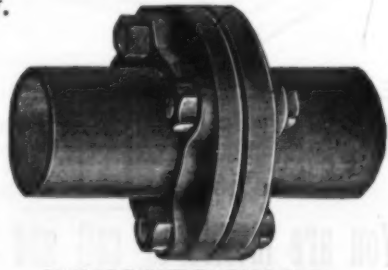
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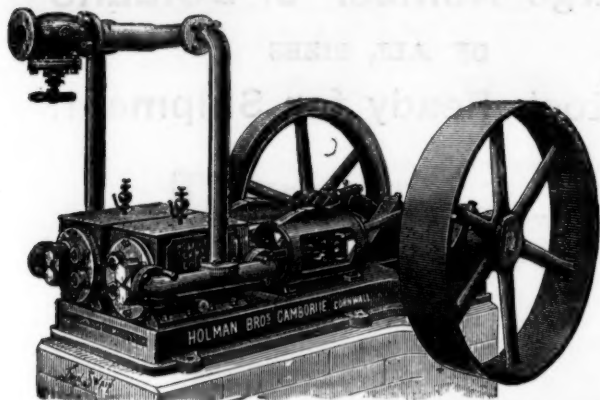
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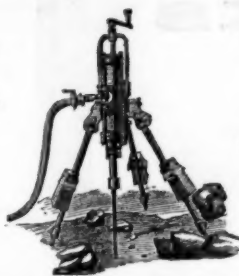
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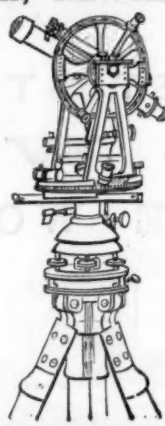
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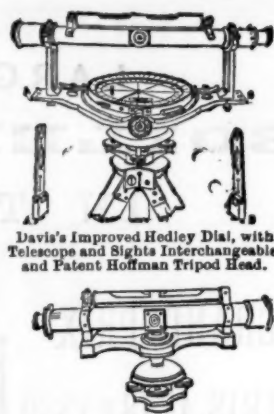
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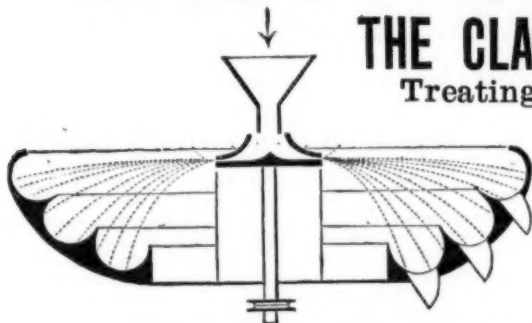
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NEW PATENTS.

LIST of APPLICATIONS for New Patents relating to Mining
Metallurgical, Engineering, Railway and kindred matters,
specially compiled from official sources for the "Mining
Journal" by Messrs Rayner and Company, Patent Agents,
37, Chancery Lane, London, W.C., who will forward all in-
formation regarding them free on application.

- 10.03 James Bingham Elliott, 23, Southampton Buildings, London.—Im-
provements in coal cutting and such-like machinery.—May 26.
- 10204 Enoch Skinner, Bank Buildings, George Street, Sheffield.—Improve-
ments in valves for pneumatic hammers.—May 25.
- 10205 Roland Harrington, 9, King Street, Wolverhampton.—Improvements in
adjusting mechanism.—May 25.
- 10213 John Wood, 7, Cherry Street, Birmingham.—Improvements in shot
fired for use in mines.—May 25.
- 10220 Robert Barlow Clarke, 73, Market Street, Manchester.—Improvements
in pump for forcing fluids.—May 25.
- 10223 Jebus Bixie, Foundry Hill, Hayle, Cornwall.—Improvements in pump-
ing engines.—May 25.
- 10227 John James Stott, 70, Market Street, Manchester.—Improvements in
and connected with pumps.—May 25.
- 10249 George Thomson, 87, St. Vincent Street, Glasgow.—Improvements in
obtaining gold and silver from ores, matter, or other compounds.—
May 25.
- 10255 A. McGilivray and P. McMahon, 34, Waverley Place, Abbey Hill,
Edinburgh.—Improvements in smoke burners for boiler furnaces.—
May 25.
- 10259 David Davies, Inkerman Foundry, Strand, Swansea.—A duplex or com-
bination pump.—May 25.
- 10339 William Wallace Dunn, 65, Chancery Lane, London.—Improvements in
 motive power engines actuated by steam or other fluid.—May 25.
- 10340 William Wallace Dunn, 65, Chancery Lane, London.—Improvements in
boilers.—May 25.
- 10344 Chas. Maria Pieshoker, 60, Queen Victoria Street, London.—Improve-
ments in the extraction of gold and silver from ores.—May 25.
- 10410 Matthew Rankin, 62, St. Vincent Street, Glasgow.—Improvements in
steam boilers.—May 25.
- 10411 Percival Pinckney, 51, Commercial Road, Portsmouth.—Improvements
in steam engines.—May 25.
- 10420 Benjamin Franklin Sparr, 52, Chancery Lane, London.—Improvements
in steam engines.—May 25.
- 10440 Charles Scott Galloway, 15, Flanders Road, Chiswick, London.—Im-
provements in steam generators.—May 25.
- 10464 William Saur, 77, Chancery Lane, London.—Improvements in and re-
lating to steam boilers.—May 25.
- 10470 Tom Edwards, 40, Charles Street, Cardiff.—A safety cage for use in
mines.—May 30.
- 10510 Anton Bolzani, 6, Lord Street, Liverpool.—Improvements in brakes for
hoisting or lifting apparatus.—May 30.

SPECIFICATIONS PUBLISHED.

2839, Mays, separating metals, &c., 1893; 10,676, W. and J. Cormack, boilers,
1893; 11,584, Crane, steam generator, 1893; 11,674, Padgett, boiler flues, 1893;
11,034, Bishop, treating leaf fumes, 1893; 12,551, Ward, boiler, &c., engine,
1893; 5392, Lench, steam boiler, 1894.
The above specifications published may be had of Messrs. Rayner and Company
37, Chancery Lane, London, at 10d. each including postage.

A GREAT INJUSTICE is very often done because some self-assertive people
imagine it is next to impossible to make an error. Shakespeare must have
made an analytical study of the human heart before he uttered those warning
words, "Man know thyself, then others learn to know." This is a lesson we
should all try and perfect ourselves in, and when this has been done we have
to face the significant fact that unless we cultivate good health, prosperity
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information can be obtained on application at the addresses given. In applying
for such the name of "The Mining Journal" should be mentioned as the original
source of the information, concerning which further particulars are required.

HOME CONTRACTS.

Gas Coal, June 18 (Mountain Ash).—For the supply of gas coal for a period
of 12 months for the Mountain Ash Local Board. Sealed tenders prepaid and
endorsed "Gas Coal," to be sent to Mr. H. P. Linton, clerk to the board, Town
Hall, Mountain Ash, by 1 o'clock on 18th inst. Specification may be seen and
form of tender obtained on application to Mr. John Williams, surveyor, Town
Hall, Mountain Ash.

Alteration to Dock, June 19 (Swansea).—For alterations to the Cambrian
Dry Dock, Swansea. Plans and specifications to be seen on the premises
between 9 and 5.

Colliery Stores, June 19 (Trundon, Grange).—For the supply of colliery
stores, iron, timber, &c., for the Trundon Coal Company. Forms of tender to
be obtained on application to the Trundon Coal Company, Deaf Hill Colliery,
Trundon Grange.

Coal, June 20 (Middleton, Lancs.).—For the supply of gas coal and cannel,
delivered at the Middleton railway station in such quantities and at such times
as the Corporation or their gas manager may require, for the Middleton Cor-
poration. Tenders, addressed to the Chairman of the Gas Committee, must be
delivered at the office of Mr. Frederick Entwistle, Town Clerk, Town Hall,
Middleton, by 20th inst., and endorsed "Tender for Coal" or "Cannel."

Iron Fencing, June 26 (London, N.).—For supplying and fixing 1140
feet run, more or less, of wrought-iron boundary fence, stays, large and small
entrance gates, &c., for Bruce Castle Park, Tottenham, for the Tottenham
Local Board. Plan can be seen, and particulars and forms of tender obtained,
on application to Mr. F. E. Murphy, engineer to the Board, Coombes Croft
House, 7-7-2, High Road, Tottenham, any day during office hours.

Reservoirs (Tottington).—For the construction of a new reservoir and the
enlargement of existing reservoirs at Storrer Hill Bleachworks, Tottington,
for Mr. R. K. Roberts. Drawings and specification to be seen and all further
information obtained on application to Mr. T. Nuttall, civil engineer, 12, Market
Street, Bury.

Girders (Hyde).—For the supply of a large quantity of lattice girders for
the bridges connected with a light railway in Mexico. Drawings and particulars
can be obtained from Mr. H. F. Anderson, A.M.I.C.E., The Esplanade, Hyde,
L.W., on payment of £1, which will be returned to all except the successful
contractor.

Colliery Stores (Pontrhyfen).—For the supply of stores and materials
as follows, for the directors of the Pontrhyfen Navigation Colliery Company:
(1) iron and steel; (2) castings; (3) bolts, nuts, rivets, washers and nails;
(4) miners' lamps and lamp-glasses, &c.; (5) rubber, leather, waste, wick,
brattice felt, packing and yarn; (6) steam, water and gunmetal fittings, &c.;
(7) ironmongery, tools, helms, &c.; (8) paints, brushes, brooms, &c.;
(9) timber; (10) wire ropes; (11) lime and cement. All information and
forms of tender may be obtained by applying to the Secretary, Pontrhyfen
Navigation Colliery Company, Pontrhyfen, Glamorganshire.

Tunnelling (Risca, Mon.).—For about 40 feet of tunnelling through lime-
stone rock, 6 feet by 9 feet; also for shaft, 20 by 20, about 40 feet deep, to meet
tunnel. Applications to Mr. William Harris, Cromwell's Quarries, Risca.

OUR INQUIRY COLUMN.

TO CORRESPONDENTS.

Correspondents will please take note that all communications will in future
be answered in this column and not through the medium of the post. All
questions and replies should be accompanied by the name and address of
the writer.

REPLIES.

- B. A.—It is very difficult to find securities of the description you
require. We should advise you to wait a few weeks.
- H. B.—Although the quotations are abnormally low, we do not
advise you to purchase any more shares in the enterprise.
- G. G.—Shares in the several companies you mention are all fairly
good investments.
- INQUIRER.—(1.) Sell for the best price obtainable.—(2.) You had
better hold for the present at all events.—(3.) The company
named is greatly over-capitalised.
- W. W.—The company has made a rapid improvement during the
last year, and the shares at their present quotation appear a
desirable investment.
- CORNISHMAN.—(1.) Thanks for circular.—(2.) The matter shall
have our earliest attention.
- B. B.—We should convert. No dividend has been paid.
- LIBRA.—It is usual to pay before delivery is made.
- D. C.—It is the old company to which Bardetts refer, and not to
the new one, which was registered in May last year. The
authorised capital of the new company is £100,000, in 100,000
shares of £1 each, as stated in our share list. The old com-
pany was not successful, and we doubt whether the new one
will be. If your holding is small it would be as well, perhaps,
to retain the shares; if large we would advise you to sell, at a
profit, if possible.
- STRAITS.—The address of the company is Chiswell House, Chiswell-
street, E.C.

THE EARTH OUT OF REPAIR.—Observations are to be made simul-
taneously at Washington and at Manila, in the Philippine Islands,
which is almost directly opposite Washington on the other side of
the globe, to see what is the matter with the axis of our planet.
Observations show that for some time the earth has not been re-
volving on that important if imaginary support, as she has done for
centuries, and scientists have decided that it is time to find out if
possible what it all means. Those who have studied the subject de-
clare that if the variations continue, in the course of some very long
and very indefinite period, we shall have an Arctic climate, and the
latitude of every place on the globe will be changed, and our geo-
graphies will be useless. An equatorial telescope has been finished
and sent out to Manila, and before long diligent enquiry will be
made into the whys and wherefores of the peculiar performances of
old Mother Earth. While one set of scientists is trying to find out
about the axis, another party is endeavouring to find out why the
magnetic needle varies so.—*Scientific and Mining Press.*

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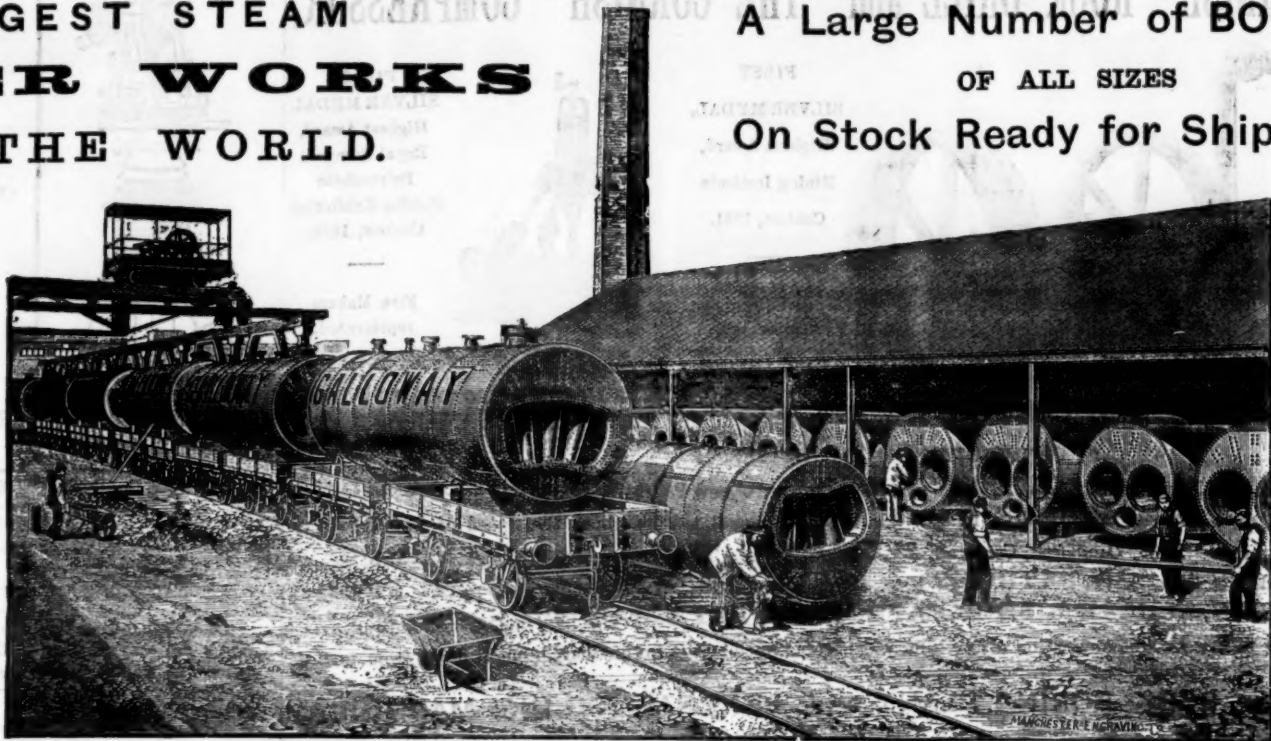
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THE COAL MEASURES IN SOUTHERN ENGLAND.*

THEIR PROBABLE RANGE.

By Prof. W. BOYD DAWKINS, F.R.S., F.G.S., Assoc. Inst. C.E.

WE are now in a position to examine the evidence of the tectonic or master folds on the question of the buried coal fields. If the whole of the one-inch geological maps of the south of England be put together and examined, it will be clearly seen that Mr. Godwin-Austen's principle of the continuity of the structure of the rocks from west to east is true. The syncline which brings in the culm-measures of Mid-Devon is continued to the south-east under the triassic, jurassic and cretaceous rocks through the long axis of the tertiary basin of Hampshire and the Isle of Wight, ultimately reaching the shores of the channel near Bognor, in Sussex. To the north of this the anticline of North Devon ranges eastward in a parallel direction through Taunton eastward underneath the triassic and jurassic rocks until it arrives at the anticline of the vale of Wardour, thence it passes through Salisbury and Winchester to the anticline of the Weald, near Petersfield, and through the Purbeck inliers to the north of Battle, and eastwards through Wincelsea to Dungeness.

The highly-faulted syncline of Mid-Somerset, bordered to the south by the carboniferous limestone of Cannington and to the north by that of the Mendips, is continued eastwards through the vale of Bridgewater and the marshes of Glastonbury through the high downs between Heytesbury and Hindon, where it is making in the direction of Haslemere. It is probably represented in the Wealden area by the highly-faulted strata to the north of the Rother. It is continued westward until it is lost in the lower portion of the Bristol Channel. The Pembroke-Mendip complicated and highly-faulted group of anticlines is represented at Milford by the carboniferous limestone and old red strata sometimes vertical. Thence it traverses the southern portion of the peninsula of Gower to the south of Swansea and the district south of Cardiff, and on to Weston-super-Mare and the Mendip Hills, throughout its course presenting the same general physical characters. It plunges beneath the triassic and jurassic rocks to the north of Frome, pointing in the direction of the anticline at Devizes, which is marked by the vale of Pewsey. From this point, as Mr. Godwin-Austen states, it is indicated by the inliers of greensand in the high downs at Ham and Kingsclere. Thence it passes eastwards through Farnham, and to the inlier of weald clay at Peasmarsh, near Guildford. It is marked still further to the east by the Wealden clay inliers of Westerham Common and Brasted, by that of Caring, near Maidstone, from which it is deflected to the south-east through the faulted area to the south of Ashford, and cuts the sea line south of Hythe.

The South Welsh syncline, consisting of silurian and old red sandstone and carboniferous rocks, and containing the valuable South Welsh coal fields, widens out from St. Bride's Bay eastwards so as to include the coal field of the Forest of Dean and the isolated coal basins of South Gloucestershire and North Somerset. A continuation of its long axis eastwards passes the chalk through the London tertiary near Newbury, and passes to the north of London through Essex. The tertiary of the London basin, it may be noted, presents a similar widening out to the east.

The Minor Folds

There are minor rolls, mostly parallel to the master or tectonic folds, which traverse the whole of the area under consideration, and which the author is unable to trace over long distances either in the east and west. They are related to the former, very much as ripples are related to the great oceanic waves. They are of local importance, but they do not affect the main outlines of the tectonic structure. The north and south folds have caused the isolation of the coal fields of South Wales, the Forest of Dean, and of Gloucester and Somerset by anticlinal areas of older rocks.

The Relation of the Tectonic Folds to the Buried Coal Fields.

It remains now to see how far these folds indicate the probable position of the buried coal fields, taking each fold separately.

The syncline of Mid-Devon with its culm measures disappears beneath the triassic rocks between Exmouth and Wellington, and maintains its average width in South Hampshire and West Sussex, where it is marked by the trough of tertiary and the syncline of Beachy Head. It ranges from Newport in the Isle of Wight in the south to beyond Romsey in Hampshire on the north. In this area the culm measures are probably present, and of the same general valueless character that they present in Devonshire. In the writer's opinion this zone is barren of coal producing rocks.

The North Devon anticline, averaging 14 miles wide, and composed of highly folded Devonian rocks, is also an area in which there is little probability of the existence of coal fields. It comprises the greater part of the South Wealden area, in which it will be remembered the experimental boring near Battle proved that the palaeozoic floor was more than 1905 feet from the surface. The Mid-Somerset syncline, about 12 miles in width between the carboniferous limestone of Cannington Park, near Bridgewater, and the Bleaden Hills, and covered almost entirely with post-carboniferous strata, most probably containing

Isolated Coal Fields.

The southern flanks of the Mendips dip at a high angle to the south, and as Mr. Woodward and Mr. MacMurtrei have pointed out, there are probably coal measures beneath the Somerset marshes. They are faulted down to the south by the east and west faults, traversing also the triassic and jurassic strata. If these be proved the results of experimental borings in this district will be applicable to the whole of the synclinal area in its eastern prolongation under the oolites and the chalk in the direction of Heytesbury, Amesbury, and Haslemere.

The Pembroke-Mendip anticlinal barren of coal measures in the west, and probably also without coal fields in France, is also to be looked upon as a barren area for prospecting throughout the whole of its range. As before mentioned it probably cuts the eastern shore near Hythe. The petroleum recently discovered at Shepton Mallet, on the southern flank of the anticline, is in all probability derived from coal measures which have been removed by denudation, in the same manner as the elaterite or elastic bitumen present at Windy Knoll, near Castleton, in Derbyshire, in the pennine anticline of carboniferous limestone. It does not imply the existence of coal measures below, but it does imply the distillation of coal by the heat evolved during the stupendous earth movements along this line—as in Derbyshire, where elaterite and allied hydrocarbons are frequently associated with faults. The South Welsh syncline, on the other hand, must be looked upon as of the utmost importance in the search after coal throughout the whole of its eastern range. At St. Bride's Bay, narrowed to a space of about 2 miles in

The Anthracite District of Pembroke.

it widens out into the broad coal field of South Wales, 20 miles in width. As it approaches the upper estuary of the Severn it is represented by the outlying and isolated coal field of the Forest of Dean, and the three partially or wholly covered coal fields to the north of the Mendip Hills, distributed through an area of not less than 45 miles wide from north to south.

The smaller fields to the west are the partially concealed basin of Nailsea with its western end passing underneath the Bristol Channel to the south of Clevedon and the Severn tunnel field, which is totally hidden by the newer rocks. It is bounded to the north by the Severn tunnel fault by which the pennant grit and lower coal measures have been thrown down to the south against the carboniferous limestone of the Monmouthshire shore, the throw being not less than 2000 feet. It is also defined in its north-western extremity by the Portishead fault with a throw of similar magnitude to the north. It is unlikely that the syncline of the vale of Winton is occupied by coal measures, because the vast amount of water rising to the surface near Congresbury, which the author had to consider in examining the district for the supply of Bristol, is the result of a free communication between the overlying triassic strata, and the underlying carboniferous limestone, which would be impossible if the coal measures were wedged in between them.

The largest and by far the most important of all the North Somerset and South Gloucester basin is bounded on all sides by

A Rim of Older Palaeozoic Rocks

except on the east between Bath and Frome. It is probably continued to the east in this direction underneath the jurassic strata. This is, however, a much debated question on which

opinions differ. Mr. H. B. Woodward, the most recent observer, considers that the basin is complete on the east side.

The wedge of more or less connected coal fields with its narrow end in Pembrokeshire, and its broad end plunging under the triassic and jurassic rocks probably continues to grow wider to the east. It is carried on some 38 miles to the east of the Forest of Dean, by the discovery of the coal measures at Burford in Oxfordshire, and is there making straight for the cretaceous syncline of the London tertiaries, underneath which the author should expect them to occur in a like chain of isolated basins.

This view is practically that laid before the Coal Commission by Mr. Godwin-Austen, Professor Prestwich and Professor Hall, and embodied in the maps appended to the report. It may, however, be objected that the only palaeozoic rocks found in the London basin in the sinkings made since the publication of the report are upper silurian, and old red or Devonian. The objection, however, finds its answer in the fact that these pre-carboniferous rocks are the same as those which separate the South Welsh field from those of Somerset, Gloucester, and the Forest of Dean. They merely prove the existence of a barren area in the former, about 30 miles wide from Streatham on the south to Ware on the north, and 12 miles long from Richmond on the west to the Southern Outfall near Abbey Wood in Kent on the east, as compared with a like area in the latter, 12 miles wide from the Forest of Dean on the north to the Gloucester field on the south, and 29 miles from the South Welsh field on the west to the Forest of Dean on the east. In this latter area the Upper Silurian occur within 2 miles of the Gloucester field near Tythestington.

The Old Red Sandstone Rocks.

occupied the greater portion of the barren area between the fields, as in the London basin. The northern boundary of this synclinal tectonic fold with its scattered coal fields, probably passes along a line running from close to the North of the Forest of Dean, due east to the North of Oxford, through Ware to the mouth of the River Blackwater in Essex. The southern boundary, so clearly defined in the west by the Pembroke-Mendip anticlines, and in Northern France and Belgium by the "axis of Artois" of Godwin-Austen, and the anticline described by Mr. Bertrand, which passes from Bologna to a south-westerly direction towards Fléchnille, in all probability cuts the coast of Kent at some point between Hythe and Folkestone, or, to say the least, at some point to the south of the south-eastern coal field proved in the boring at the Shakespeare Cliff.

This coal field, as the author had mentioned in his previous communication to the institution, is probably a continuation of the measures struck at Calais, and extending in a long narrow trough indefinitely to the west. It should be sought for along the meridian of Dover, Ashford, Maidstone, Sevenoaks, and Croydon. Its width from north to south remains to be proved, and it may range in one long, narrow trough to the west, or, as is more likely, it may be composed of a chain of isolated troughs similar to those of Northern France.

General Conclusions.

It remains now to sum up the result of this enquiry, which leaves the question almost in the same uncertainty as it was left by Mr. Godwin-Austen and Professor Prestwich. The new light thrown on the question by the discovery of the south-eastern field should be utilised by making new borings to the west. Coal fields like those in the western portion of the South Welsh syncline should be sought for along the whole of its concealed course to the east, it being clearly understood that there are barren areas of older rocks. The development of our mineral wealth is of such vast importance that it would be well worth the while of the Government to undertake a series of experimental borings, which would indicate the productive areas, and would in all probability add greatly to the resources of the country. It is a work which would benefit the nation, and, therefore, should be carried out at the national expense. In the present state of the mining laws it is not likely to be undertaken by the private adventurer. It might be, however, undertaken by a combination of landowners, either with or without a compulsory rate on the property of those who would be benefitted by the discovery of new coal fields.

It is expected that the 30 stamps of the Champ d'Or Deep Level Mining Company will begin crushing in three months.

* Abstract of paper read last week before the members of the Federated Institution of Mining Engineers.

THE GOLD DEPOSITS OF SIBERIA.*

By ANTONIN FONIAKOFF, Engineer to the Soci t  Cockerill, Seraing (Belgium).

THE German geologist, Von Groddeck, divides detritic auriferous deposits into two categories, namely:—(a) Deep placers, dating from the close of the Pliocene period, and typically occurring in California, where they lie parallel to the Sierra Nevada. They constitute what may be termed deposits *in situ*, and gold deposits of that kind are not to be found in Siberia, so far as at present known.—(b) Shallow placers or quaternary alluvia. To these we propose to devote some attention, because nearly the whole of the gold hitherto extracted in Siberia comes from them.

Now, Von Groddeck and others who believe in the mechanical formation of placers, again subdivide the shallow placers into two groups:—(1) Those originating direct from the degradation of the mother rock (matrix); (2) those derived from the re-assorting of the deep placers.

Leaving out of count for the present the last-named group, although we shall find later on that deposits which properly belong to it do occur in Siberia, we will now consider the placers which were derived direct from the erosion and degradation of the matrix rock. Formed by the action of streams in quaternary times, these placers have themselves been subjected since then to the destructive influence of atmospheric agencies. Under that influence, the gold disseminated in a microscopic state of division among the detritus from vein rocks, was dissolved and then re-precipitated around grains of the same metal and other centres of attraction, preferably around those situated in the lower strata of the deposit.

In plutonic rocks gold is sometimes discovered in combination with lead and silver ores, pyrites, and other substances. These igneous rocks, together with the silurian, constitute the main source of Siberia's rich gold deposits.

The Associates of Gold in Placers.

First among the minerals which occur in association with gold in most of the placers of Siberia may be mentioned auriferous pyrites. The proper method of treating the pyrites being unknown in the country, that mineral generally goes to waste.

In the mines of the Yeniseisk district, pyrites crystals occur abundantly in fragments of clay slate, particularly in the river valleys of the Murojnia, the Talaia, &c. In these valleys, moreover, are found chalcopryite, staurolite-crystals, limonite, siderite, and specular iron ore variously lithoidal, scaly, lamellar, and manganiferous. The last-named variety is of especial interest, because it sometimes encrusts the gold nuggets with a black coating, to which they owe the appellation of black gold; this black coating may, however, be formed by iron oxide alone without the intervention of manganese at all. The importance of these facts will be understood when one recollects that "black gold" will not amalgamate; and it so happens that, up to the present, no better process is in use in Siberia than amalgamation for extracting the gold from ores and tailings.

Besides iron ores, lead is frequently present in placers in the form of galena, of antimonious and arsenious ores, of its sulphate, carbonate, and phosphate. It is interesting to remember that the phosphatic lead ore is often highly charged with gold when it occurs at any considerable depth from the surface. Antimony occurs as oxide and sulphide: it does not combine with the gold, but constitutes a serious hindrance in the metallurgical treatment of the precious metal. Copper is found as chalcopryite, and in the native state in small grains, often in combination with gold and silver. The last named metal, which invariably accompanies the native gold, is sometimes discovered in separate accumulations in the placers. For example, in Messrs. Krassilnikoff and Popoff's mines in Eastern Siberia, masses of argentiferous galena were brought to light at some time in the '60's. Arsenic is always noticed to occur in considerable quantities in the pyrites, particularly in the auriferous veins.

Moreover, there occur, as natural alloys with gold, silver, palladium, and rhodium, and the platinum found in the placers is always derived from the degradation of the *grinstein* (greenstone). The following minerals are noticed occasionally in the placers and near the outcrops of veins, but never in any great quantity:—Calcite, magnesite, manganese, molybdenite, wolfram, vanadite, zircon, and tourmaline. All hard precious stones occur either in the immediate vicinity of the placers or in the placers themselves. Among them we may mention the diamond whose matrix is a metamorphic rock known as itacolumite, the emerald, the ruby, the saphir, the topaz, chrysoberyl, various transparent and highly-coloured garnets—such as almandine, whereof many fine specimens have been discovered in the province of Yeniseisk and in the Altai. Finally, to the above should be added rutile, cassiterite, cinnabar, native amalgam, hornblende, quartz, mica, &c. But of all the substances which occur in association with gold, one is especially remarkable, viz., native bismuth. At present it is only recorded from a small number of localities—in the Sevaglicone River valley (in the gold region of the north of Yeniseisk), in the Kedrovka River valley, and in a few other valleys of the Altai.

The ordinary form assumed by the native gold is either that of irregularly rounded nuggets or of small flakes. Occasionally it occurs in crystals about the size of a pea; these crystals are sometimes octahedra, but most often cubo-octahedra or rhombododecahedra. In the heart of the crystals one invariably finds a nucleus which may be a grain of quartz, or of pyrites, or brown magnetite (Dr. Bekker).

General Configuration of Auriferous Localities.

The external aspect of gold-bearing regions is, as a rule, highly characteristic. The principal feature is that the districts which include auriferous vein rocks and valleys with auriferous alluvia are usually of moderate elevation; they are a series of low, rounded hills, with very few outcrops of rock-in-place. Thus, for example, in the Altai, where the chief mining centres lie south and only a small number of mines are worked in the north, in the Alatau range, the hills present precisely the characteristics to which we have just alluded. The rocks of this portion of Altai are for the most part pre-silurian schists (not often crystalline), upheaved by eutritic porphyries and greenstones which have probably played a considerable part in the deposition of metalliferous accumulations in this area. The same features characterise the gold-bearing districts of the Yeniseisk, world-renowned in bygone days for their wonderfully rich deposits.

In Siberia, the farther east one goes, the greater is the proportion of pure gold found present in the nuggets. And observers have also noticed that the Siberian placers increase in richness in the direct ratio of the latitude (*i.e.*, the higher the latitude, the richer the placer). A careful study of the general configuration of a district, coupled with its geology properly so-called, will be found pregnant with valuable hints for the gold-searcher. The precious metal must be looked for in those localities which are geologically most disturbed. Now, striking

surface-features are mostly an indicator of very great geological disturbance, and it is to them that the attention of the prospector should be more especially directed.

In an auriferous district any irregularity, or passage from one rock into another; any sudden change of dip; in fine, any change in the conditions and physical aspect of a country, may well point to the presence of gold. A characteristic example of this is the Abakan district, in the south of the province of Tomsk; here is a vast depression towards which converge the gold-bearing streams the Kizias, Vessiolais, and Bezimianka. The depression is girdled by high mountains, but the hills at the most richly auriferous points of the Kizias and Vessiolais, are as if planned down to a much lower level. So too at the sources of the gold-bearing streams of the Nerchinsk area, the hills are flattened, their slopes are gentler, more smoothly rounded.

Distribution of Gold in Siberia.

North of the 62nd parallel no one has, as yet, prospected for gold. But gold is there, nevertheless. A very rich auriferous vein occurs in the Verhoianskiy ridge, the watershed separating the Lena River basin from that of the Jana, but no miner has bent his steps that way for well nigh a hundred years. Boholubskiy calls his fifth zone "Zone of the Eastern Ocean;" it comprises La P rouse Strait, the islands of Japan, and those of the Sea of Okhotsk and the Behring Sea, together with the peninsula of Kamotatka. No serious attempt has, so far, been made in the Island of Sakhalin to look for gold, although there is no doubt whatever that the soil of that island is auriferous. Southward the Russian gold mines are limited by the 42nd parallel.

In Western Siberia gold occurs in the valleys of the tributaries of the Obi, in the districts of Semiretchi , Akmolinsk, Semipalatinsk, and in the provinces of Tomsk and Tobolsk. We may note, by the way, that in Akmolinsk and Semipalatinsk gold was worked as far back as 3000 years before the Christian era. At the present day the gold workings in the Semipalatinsk district are situated on the affluents of the Zaisan lake, and on those of the Narime and Black Irtysh Rivers; in the Semiretchi  district they are in the tributaries of Lake Isik Kule and the Balkash, and in the neighbourhood of Kopalsk. In the Akmolinsk region gold workings are concentrated in the Kokchetavskiy district, south of the town of Petropavlovsk.

Gold is at present obtained from the following rivers in the Altai, all of which belong to the Obi basin: the Sue na, Tersia, Balixa, Lebed, and others. The placers situated on the left bank of the Tom River are extremely rich, and are worked by two powerful syndicates from St. Petersburg, the necessary authorisation having been obtained from the Czar as a quite exceptional favour. On the other hand, private individuals are perfectly free to work the placers on the right bank of the Tom. In this basin the auriferous streams are the Tom itself down to the Balixa, the Abakane and its tributaries, the feeders of Lake Teletzkoe, the Tchoulishman, Upper Katu a, Bushtarma, &c. The Mariinsk district of the province of Tomsk is comprised in the river-basin of the Tchulim, here the gold-bearing streams are the Kiia, Shaltir, Kojah, &c. The gold region of the Altai is best known in its northern portion, southward of the Tom River: that constitutes the district of Kondoma and Mrassa.

In Eastern Siberia, considering first of all the Yenisei basin, the districts of Atchinsk and Minussinsk must be especially mentioned. Here the gold workings are situated in the river valleys of the White and Black Yussas, the Alguia, Amil, Sessim, Saiba, Kizir, and Blami k. The Yeniseisk *taiga* or gold region proper lies between the Angara and Podkamennia-Tunguska Rivers, and is sub-divided into two portions—(1) the northern, situated 124 miles north of the town of Yeniseisk; and (2) the southern.

The northern gold field stretches from south-west to north-east for a length of 155 miles, from the mouth of the Great Pitt to the Yotchino River, a tributary of the Toia; from south-east to north-west its length is 124 miles, from the mouth of the Tchimbira, tributary of the Pitt, to the mouth of the above-mentioned River Totchimo. The southern gold field stretches south-eastward from Yeniseisk for a distance of 93 miles; it covers the area comprised between 58  15 mins. and 60  20 mins. north latitude, and 110 and 111  east longitude of Fulkoro. This area is reckoned from the village of Tatarka on the Klimovskaia road up to the confluence of the Gorbilok and the Pitt, that is, along a line of 112 miles; then from the village of Ribnyi Brod on the Motiginskia road up to the same point, along a line of 104 miles. The Great Pitt River may be regarded as the boundary line between the two gold fields, northern and southern.

The chief valleys of the northern gold field are those of the Sevaglicone, Oghn , Kalami, and Enatchimo Rivers, forming the Podkamennia-Tunguska basin, and of the Aktolik and Vangash Rivers, forming the Pit basin—tributary to the Yenisei. The principal rivers in the southern field are the Udoro , which flows into the Kamenska, this is a tributary of the Angara, which in turn goes to swell the Yenisei; the Mamon, the richest valley of all; and finally, the Great Murojnia and the Pitt.

The auriferous districts in the province of Irkutsk are those of Kansk and Nijne Udinsk, Yenisei basin, and Verholensk, Lena basin. There the gold is disseminated in the tributaries of the Angara: the Uda, Birussa, Kan, &c.

In Transbaikalia the Verho udinsk gold field belongs to the Yenisei basin. There the Tchikoi River, a tributary of the Selenga, is especially rich in gold. The placers of the district are clustered in the valleys on the south-eastern flank of the Jablonoi ridge, in the neighbourhood of the Mongolian frontier. The Barguzin district belongs to the Lena basin; gold is disseminated in the placers of the various tributaries of the Vitim River, which flows on the right hand into the Lena. It seems highly probable that in this district occur the veins which are the source of the gold found in the astonishingly rich valleys of the lower Vitim and its tributaries.

The active mining industry of the Olokma gold field is nowadays concentrated on the right bank of the Lena, below the mouth of the Vitim River, and 155 miles above the town of Olokminsk. The chief mines lie along the right hand tributaries of the Vitim, and at the sources of the rivers which join the Olokma on its left bank. A large amount of capital is necessary to work the placers of the Olokma, for to mention only one difficulty, agriculture being impossible in that district, all provisions have to be sent thither from the province of Irkutsk. And then it often happens that the thickness of barren alluvium (miscalled peat) attains or even exceeds 70 feet. The placers are situated in the region of eternal snow, but it must be admitted that they are exceptionally rich.

Indeed, all along the Olokma, Vitim, and other tributaries of the Lena extend gold districts of inexhaustible wealth; they all lie on the northern slope of the Jablonoi ridge. This wealth of gold continues uninterruptedly to the tributaries of the Amur and the Shilka, in Transbaikalia, on the southern slope of the above-mentioned ridge, and ceases only:—those localities in the district of Nerchinsk where lie silver deposits.

The auriferous deposits of the Amur are thickly clustered about its head waters, and along its left hand tributaries, the Zeia and Bureia (and especially the Nimane stream); these localities are situated on the spurs which strike off from the Bureia and Jablonoi ridges. The breadth of the placers attains and often exceeds two-thirds of a mile.

Those belonging to the Imperial Privy Purse, in the district of Nerchinsk, in the river basins of the Shilka and the Argun which unite to form the Amur. These placers have been kept *in situ* by the freezing cold of the glacial period which compacted them sufficiently to resist their transportal to the waters of the Pacific, where, but for that, they would have in ages gone mingled with the sands on the sea bottom. Such mines in the Nerchinsk district as belong to private individuals are situated on the left bank of the Unda, Onon, Shilka, Kuenga, and other rivers, up to the watershed betwixt Nercha, Urum, and Ishatcha.

In the extreme east we may mention as auriferous the Amgun River, the river valleys in the islands of Askold and Sakhalin, the Kuril Isles, the Schantars, &c. Starting from the region of Nerchinsk, the gold-bearing zone runs round the southern portion of Lake Baikal, and extends through the various ramifications of the Saian ridge, in the districts of Verho udinsk and Irkutsk (belonging to the province of Irkutsk) and in the districts of Kansk, Krasnoarsk, and Minussinsk (belonging to the province of Yeniseisk), the chief town for purpose of administration being Krasnoarsk. The southern spurs of the Saian ridge have only been searched for gold in the Minussinsk district—where, indeed, the precious metal is now being mined.

The headwaters of the Yenisei have not been the object of any careful study, but well informed persons appear to think that a vast hoard of mineral wealth is lying there dormant till the magic wand of enterprise shall summon it to light. On the left bank of the Yenisei, between the two Tunguska Rivers, run mountain ridges, and thence for many years was got more than one-third of the total amount of gold produced in the Russian Empire.

Westward of the Yenisei extends the Alatau ridge, where the Tom River takes its source; this ridge is auriferous along its entire length, and in its eastern portion gold occurs uninterruptedly. It is worked too in its northern portion, the ridge of Salair. These placers are situated in the hills, which occupy the area comprised between the Tom River and Lake Teletzkoi . The localities north of that lake are also auriferous. Farther west gold has been found in the valley of the Katun; but here a break comes in, and on the ridge of Holzun auriferous placers give way to argentiferous veins. It should nevertheless be remembered that in the silver-lead mines the ore is often found to bear gold. Yet farther west, gold is got on the left of the Irtysh River, in the Kirghiz steppes, betwixt the towns of Ust-Kamenogorsk and Serghipol. No gold is found beyond the steppes to the south-west, while in the north of the Kirghiz steppes occur some well-nigh exhausted placers. There the broad auriferous zone of Siberia merges gradually into the Uralian zone.

Towards the south of the Ural the gold deposits are cut off by the Caspian sea; they partly re-appear in the Caucasus, where we find the termination of the great auriferous belt which stretches northward and westward from New Zealand and Southern Australia.

A point worth while noting is that if a line be drawn from Bokhara through Omsk and Turuhansk (on the Yenisei), right up to the mouth of the Lena, that line will determine the northern boundary of the gold-bearing formations of north-western Siberia. Outside that limit mere traces of gold only are met with.

Geology of the Placers.

The present chapter will be devoted to a brief review of the characteristic features of placers from the geological standpoint. We have already seen that placers are made up of the rounded debris of the rocks which form the neighbouring mountains, and that the gold found in them is a result of the degradation of the quartz veins found in those mountains. The roots of vegetation implanted in the soil covering the original rock have caused it to break up, and thus contributed to the formation of the placers.

Quartz is very frequently found fissured at the contact with gold, for the reason that the co-efficients of dilatation of quartz and gold are not the same. This may partly help to explain how it is that so many placers have been worked in Siberia for a great number of years, and yet that in comparison so few gold quartz veins are known. The upper portions of the veins, crumbling under the destructive influence of the extreme variations of temperature characteristic of the Siberian climate, have been swept down into the valleys, hiding their true outcrops, and throwing additional obstacles in the path of the prospector. The phenomenon of fissuration is so very general that the miners have come to believe that the quartz is only gold-bearing on its surface.

The debris in the placers are commingled with a more or less adhesive clay. The viscosity of this clay, called *mu nika* in Siberia, depends on the amount of iron ochre that it contains, and this ochre gives a red tinge to the entire placer. The clay which originates from the degradation of syenite colours the placers blue, and that which comes from the destruction of diorites colours them green. In the pure clay, free from sand and pebbles, gold is rarely found, and then only in minute proportions. White and grey clays, coming from non-auriferous rocks, are usually a sign of the sterility of the placer.

The gold-bearing strata do not, as a rule, crop out at the surface, and they are always capped in Siberia by a barren alluvium improperly termed peat. The use of the term has been thus extended, because the first placer ever found in the Ekaterinburg district in the Ural was in a marshy spot, and was covered by a layer of true peat. The bed-rock of the placers is generally the main rock of the district, more or less broken up by water action. Sometimes the angular rock-fragments are found in placers stuck upright, their interstices being filled with plastic clay often containing much gold.

In placers lying on gentle hill-slopes and largely characterised by the presence of a small quantity of rolled pebbles, one often notices two auriferous horizons, the lower of which is workable, and the other, as a rule, not workable. Such hills, with gentle slopes, cut by shallow valleys, are met with in the Kirghiz steppes, and in the southern Ural.

Gold placers on steep slopes are usually seen only at the headwaters of rivers or at the starting points of valleys, as, for example, at the sources of the Sevaglicone and the Aktolik in the Yeniseisk district. Placers of that description are also met with in the Salair ridge (Altai) along the upper course of the Ur River, while the Ur valley in its lower portion is not by any means auriferous. In the fissures of the rocks which go to make up such placers, one often meets with very richly auriferous accumulations of debris and clay.

Sometimes too the rocks which surround the placers are gold-bearing, and gold is found even in schists. Goffman crushed pebbles of argillaceous schists, picked from the placers of the Udoro  River (Yeniseisk district), and got about   to 1 ounce of gold per ton. The pyrites and grey "slicks," often very abundant in the placers, are at times richer in gold than the quartz itself. So, for example, in the Nerchinsk district there are placers such as the Taininskaia, Kudetchinskaisa, and Lontchinskaisa, whose bed contains much syenite and quartz impregnated with highly auriferous pyrites.

The breadth and thickness of the workable placers is generally dependent on the direction of the watercourses and the prevailing winds, for on these factors depend the amount of damp or

* Extract of a paper read last week before the Federated Institution of Mining Engineers.

† Native gold contains at times as much as 40 per cent. of silver.

wet, the variations of temperature, and other causes contributory to the destruction of rocks. As a rule, placers extending in valleys from one to two miles or less in length do not repay working.

Large nuggets are not carried far from their original site; what gold is carried down is divided into excessively minute, thin flakes, and accumulates at a considerable distance into placers that are unworkable in the present conditions of mining industry. The farther they are from the original site the more rounded are the pebbles in the placer, the smaller they are also and the more mixed with sand. One may follow these gravels for a long way in the beds of such great rivers as the Yenissei and the Tom; they gradually diminish in mass, and finally give place to sands.

The placer, settling down and getting more and more compact in its lower strata, finally becomes motionless as to its lower part, while the upper strata continue their onward march. Thus it is that the latter contain so many rolled pebbles, while the lower strata have so many angular rock-fragments. Lastly, the rolled pebbles are covered up by a layer of clayey soil—that which is improperly termed *peat*—and form the ground upon which grows our contemporaneous flora.

The placers of the *taiga* of Yenisseisk have a very curious lie. The Yenisseisk hills range usually parallel to the rivers, forming from place to place what may be termed "mountain knots," which act as lines of watershed. At such points, on the flanks of these knots, the placers lie radially and sometimes cover a very large area. A few of the knots have been the sites of fabulous rich placers. Such, for example, is the watershed betwixt the Aktolik, Sevaglicon, and Kalami Rivers. One may mention also the knots at the headwaters of the Enatchimo, Tchirimba, and Teia Rivers, and those near the sources of the Tchapa, Tissa, Noiba, and Gorevka. All belong to the [physiographic] system of the northern portion of the *taiga* of Yenisseisk. In the corresponding southern portion a mountain massif plays a similar part as between the Rivers Uderoi, Great Murojais, Malais, Pentchonga, and Tatarika.

In the Olókma basin, a gold-bearing tributary of the Lena, there are also four knots comparable to those of the Yenisseisk area, and here too the placers lie radially. One knot intervenes between the headwaters of the Little Patom, Molvo, and Homolho Rivers. Another between the

Auriferous Veins.

The veins occur mostly in mountains which have been formed by the plication of metamorphic schists and sedimentary rocks, a movement which was accompanied by the eruption of granites and greenstones. The schists were not in sufficient mass to stretch over the now curved, undulating surface, and so great longitudinal fissures were formed, into which the granites were injected; these granites now stand out as bold crags. Porphyries and greenstones crop out less frequently along the ancient fissure-lines. The quartz veins seldom cut through the eruptive rocks, but are very numerous in the metamorphic series, and the mountain spurs, which are exclusively made up of granite, are as barren of auriferous veins as they are of placers.

It is worth while noticing that the richer the mountains are in ore deposits of the ordinary useful metals the poorer they are in gold. As said elsewhere, the auriferous belt in the district of Nerthebinsk is broken at those points where argentiferous galena occurs, and a similar observation applies to the Altai.

The auriferous quartz is a little greasy to the touch, and often tinged uniformly yellow; sometimes it is bluish-gray, and very rarely black. But gold is also found in the rocks traversed by the quartz veins, the schists, the serpentines, the greenstones, the limestones, &c., and it is a common saying in Siberia that "the gold-bearing mountains consist of soft rocks."

DIGGING GOLD WITH A STEAMER.—Extravagant stories are told about the wealth of gold sprinkled through the Snake River County in Idaho. As a general thing the gold is very fine, the particles being of so light weight as to be elusive. Save when worked on a large scale, it is difficult to make good wages in recovering the gold. Numerous bars along the river would prove profitable could water be commanded for sluicing or hydraulicizing. An adequate supply is hard to obtain, from the slight gradual fall of the stream and level character of the outlying lands. To overcome this lack of water, as well as to ensure sufficient dumping ground, a big floating gold saving dredge has been constructed, and is now at work on the Idaho bank of the river, about 10 miles above the Payette. It is a stern wheel flat boat, propelled by steam. Substantially constructed, 65 feet long and 22 feet wide, it is equipped with a 35 horse-power machine engine and boiler, and adapted in every way for navigating Idaho's great waterway. With a slight alteration it could be transformed into a steam dredge, and used to scoop up sand and gravel from the bottom of the stream. As in the past, operations are now confined to working bars out of the channel of the river. The method pursued is to anchor alongside one of these gravel deposits, and, by the use of scrapers, bring the material to be handled within reach of the gold washing machinery with which the craft is rigged. The gravel is scooped up by buckets attached to an endless chain. There are 48 of these receptacles on a belt 60 feet in length, and each has a capacity of about 20 pounds of dirt, which is delivered into a hopper. This is also an agitator, and a process employed may be described as a steam rocker, with the exception that it has an end motion instead of one sideways. The gold is caught on copper plates with quicksilver. The tailings are carried off in sluice boxes by a stream of water of 150 mineral inches, supplied by a China pump run by the engine which drives all the other machinery. The gravel is worked so thoroughly that no gold escapes in the tailings that are dumped into the river. An average of 100 tons of gravel are handled, and for this work three men are employed—an engineer, one to work the scraper, and another one who shovels the dirt into a pile so that the buckets can scoop up a full load. The bar now being worked covers an area of 10 to 15 acres. The gold is on top or close to the surface, and will not pay to handle to a greater depth than 12 to 18 inches. This shows a value of 1½ to 3 cents a pan. A clean up is made every night, and the average of the runs for the first three days was very satisfactory to Thornton Williams, the owner of the craft. He says he expects to take out upwards of \$100 a day as long as he works.—*Helena Independent.*

SIAM MINING.—The mines and mining schemes established in Siam to-day are as follows:—"Gold Fields of Siam," with Bangtaphan on the north-east coast of the peninsula, as the centre. The shares of this company are quoted on the London Stock Exchange, and the present value of the shares indicates correctly the condition of the work. The Kabin mines are now being opened by an Englishman, and preliminary work is going on. The Wattana Mine is a concession to a Frenchman, and work is also being started. Both the Kabin and Wattana mines are well up the eastern river (the Bangpakong), and lie at the foot of the Mekong plain towards Cambodia. There is a Sapphire and Ruby Company of Siam in London, with valuable concessions in the district behind Chantaboon. Work has gone on in that neighbourhood on a large scale for the past 15 years, and the trade has always been in British hands—long before the London company got their concession. The miners are nearly all Burmese, some of whom live in the district, and others come and go each year, and work in the least unhealthy season. Reports of deposits of various minerals, gold, silver, antimony, lead, tin, plum-bago, are continually being received by residents, and the Siamese Government having formed, under two English experts, a Government geological and mining department, one can well hope for an early development of the mineral resources of Siam.—*Journal of the Society of Arts.*

MEETINGS OF MINING COMPANIES.

THE SILVER KING MINING COMPANY, LIMITED.

Amalgamation unanimously agreed upon—A promising future for the property.

An extraordinary general meeting of the Silver King Mining Company (Limited) was held on Tuesday, at Winchester House, the chair being occupied by Sir SAMUEL CANNING, for the purpose of considering, and if thought fit, approving an agreement, for carrying out a proposed amalgamation with the Waterloo Mining Company. The SECRETARY (Mr. Edgar B. Samuel) read the notice convening the meeting.

The CHAIRMAN said: We have called you together to-day—as explained in the notice just read to you—in order to consider the proposed agreement for an amalgamation between this company and the Waterloo Mining Company, embracing all their mining properties and interests at Calico, Cal. It will doubtless be in your recollection that at our annual general meeting in December, 1892, I mentioned to you that Mr. Sanger, a director of the Waterloo Company, had been in England in March and April of that year, and had opened negotiations for the amalgamation of the two properties, but as we could not obtain from him any definite proposal, the negotiations fell through, and Mr. Sanger returned to America. In May last year the board authorised Mr. De Friese, when in America, to re-open negotiations with the Waterloo Company, in order to come to some arrangement whereby the litigation concerning the two properties might be put an end to, and the whole worked as one concern. Mr. De Friese and Mr. Edwards—our manager—had been in treaty with the Waterloo directors at Milwaukee for some time, and were hoping that an arrangement would result, when at this time the Indian mints were closed, and the heavy drop in the price of silver attendant thereon, upset all their calculations, and negotiations were, therefore, again broken off. I shall leave it to Mr. De Friese to relate to you his proceedings in connection with this matter. We have for a long time been of the opinion that an amalgamation of the two properties would be advantageous, if terms satisfactory to both parties could be arranged. The board were led to believe that the Silver King Company's property was more valuable as a mining property than the Waterloo Company's, and on the other hand the Waterloo Company valued their property higher than we did. They also owned mills with 75 stamps, together with tramways and engines to run their ore cheaply from the mines to the mill. We have only 30 stamps, and no tramways, &c. The occasion of the representatives of the Waterloo Company visiting San Francisco last May afforded a good opportunity for again opening negotiations for an amalgamation, and this, as you will perceive from the letters of Mr. Edwards and Mr. Scopham, was taken advantage of, and resulted in the agreement now submitted for your consideration. We should, of course, have much liked to have gone in as representing a larger proportion of the proposed joint capital, but, as Mr. Scopham observes in his letter, each party had to concede something from their original programme after entering upon the conference. We have examined the terms of the agreement carefully, and are of opinion that it will prove to be advantageous to this company. In the first place all litigation respecting the two properties—which is now very great, and may continue for many years to come—will cease. This litigation causes us very great inconvenience in regard to the economical working of our mines, and shuts us out from some of our best ground. Mines from which large quantities of good ore have been obtained by both parties, before they were prohibited, by the Californian Law Courts, from working them, will thus be released, and worked for joint benefit. Secondly, the Waterloo mills of 75 stamps, added to our own 30-stamp mill, will give us practically the productive power of 20 additional stamps, which is an important item. Thirdly, although our property is large, comprising 53 claims and fractions of claims, of which 11 are patented, the Waterloo property consists of 51 claims and fractions of claims, of which 26 are patented, thus the consolidation of these two properties will constitute one of the largest—if not the largest—mining property in the United States. I think I can show you the practical benefit which we shall derive from this agreement as regards the general working of our mines at Calico, and the estimated results which may be anticipated if the amalgamation is effected. For the twelve months ending April 30, 1894, we have, with 30 stamps, treated about 25,550 tons of ore, of an average grade of 11 ounces per ton, producing 276,780 ounces of fine silver, giving an approximate profit of £6000. Under the proposed agreement, with 100 stamps running, our manager, Mr. Edwards, states that he considers we may depend upon 10 to 15 ounces ore, and that 75,000 ounces per month is a safe estimate for production, the expenses amounting to about £6000 per month; this would give us for our share a profit of £20,000 per annum approximately. We have for a long time been struggling on with 30 stamps, and have not succeeded in finding additional working capital to increase our production, and it has only been by the strictest economy in working that we have been able to continue our operations without loss, in face of the unprecedentedly low price of silver. The constitution and rights of the Silver King Mining Company will remain as they now are, the only difference being that instead of holding the whole of the stock of the Calico Consolidated Mining and Milling Company, we shall hold one-half of the stock of the new company—The Calico District Mining Company—to be formed. It is proposed that the directors of the new company shall consist of five members—Mr. Bartlett Doe and Mr. Scopham, nominated by the Silver King Mining Company, and Mr. George H. Noyes and Mr. D. T. Cole, nominated by the Waterloo Company, with a Mr. D. W. Earl (shipping agent and banker) as an independent member, not personally interested in either company, chosen by both parties. Mr. G. H. Noyes will be President of the new company, and Mr. J. R. Scopham, secretary, no contract or document to be binding unless it bears both signatures. There are, of course, details as to the management and otherwise to be arranged, which are not included in the agreement, and these most of course be left to the board here to settle. This agreement with the Waterloo Company relates, of course, only to our Calico property, and does not in any way affect our gold property in Calaveras, County California, which belongs wholly to the Silver King Mining Company (Limited). I beg now to move the following resolution:—"Resolved: That the agreement of the 4th May, 1894, submitted to this meeting, entered into by Messrs. Scopham and Edwards on behalf of the company, be and is hereby approved, ratified, and adopted, and that the seal of the company be affixed thereto."

Mr. ERNEST BIGLAND (director) in seconding the motion, said he thought the proposed consolidation was distinctly in the interests of the company. Not only would it terminate the unfortunate litigation, but it would give them—what they had long been wanting—some additional stamps, and so would greatly increase their chances of a dividend. There did not seem to be much prospect of their getting the £30,000 or £40,000 needed for these additions to the plant in any other way. They would also get by the proposed arrangements some 51 claims, some of which were valuable and some still untested.

The CHAIRMAN, in reply to questions, explained that owing to the litigation they had been debarred from working some of the best parts of the property; while the Waterloo Company were in the same position. The other company had been seeking injunctions against them, and hampering them in every way. Under the new arrangement, however, the mines of both companies, which were situated together, could be worked under the same management, and to much greater advantage.

Mr. DE FRIESE (director) stated that the Waterloo Mining Company had at the present time 15 stamps running. Judge Noyes had told him, when at Milwaukee in the spring, that they did not then intend to start their 60 stamp mill again until silver had reached a higher price. As to the properties themselves, however, he had a

deal of confidence in them. They possessed, undoubtedly, the richest mine in the district—viz., the King Mine, a mine which had, in fact, made the history of the place. This had been closed by the litigation, but in the past it had produced immense wealth. Taking all things into consideration, he thought they had every reason to be satisfied with the proposed arrangement.

The CHAIRMAN said the management of the Silver King had been working in the past year with 30 stamps, and had only realised a profit of £6000. Now, with 100 stamps at work, treating the same grade ore, their moiety of the profits would amount to £20,000.

The resolution was then put and carried unanimously, and the meeting terminated with a vote of thanks to the Chairman.

THE CORTEZ MINES, LIMITED.

Discoveries expected in the St. Louis vein.—Hopes for the future.

The sixth ordinary general meeting of the shareholders in the Cortez Mines (Limited) was held on Wednesday, at the Cannon-street Hotel, the chair being occupied by Mr. THOMAS J. BEWICK.

The SECRETARY (Mr. R. H. M. Hill) read the notice convening the meeting, and the report and accounts were taken as read.

The CHAIRMAN: Gentlemen. On this occasion there is, I regret to say, little to comment upon of a favourable character. The silver market, in the condition in which it has continued since we last met, has not given us much, if any, encouragement to resume active operations in the production of the white metal, which is practically our only output. In fact, during the last 12 months, it would probably have been unwise to resume the extraction of mineral, and hence the company has been resting on its oars—not a profitable, but at the same time an unavoidable course to pursue. Active underground developments have, however, been carried on; the Polar tunnel having been extended 3005 feet, and other levels 1340 feet, making a total of 4345 feet driven during the year under consideration, and since the end of the last financial year (September 30, 1893) further progress has been made. The Polar tunnel has, according to the latest advices (May 19), been driven 4260 feet, over four-fifths of a mile. At 4100 feet, a vein, 8 feet wide, was intersected, and this, it is believed (in fact, there is little doubt), is the St. Louis lode, which was the first worked by Mr. Wenban on taking up the property many years ago. It was, it is alleged, where opened upon, very rich in silver, and but for its inaccessibility would then have been continued. The mountainous and rugged character of the surface rendered it difficult of access, and operations at that point of the vast area comprised in this company's territory were suspended, and the mineral deposit attacked with great success at a more favourable spot. Now, however, this Polar tunnel has tapped the vein some 700 feet vertically below where it was formerly worked at and near the surface, and it can now be operated upon without hindrance, by transporting the ore through the Polar and main tunnels direct to the mill, in spite of the inclemency of the weather, or other disadvantageous circumstances, and at reduced cost. A level is being driven on the St. Louis lode to the west, and has not made much progress yet, therefore we have little to say about it except what appears in the report. All that is now needed to bring about active operations and profitable results is an enhancement in the value of silver. The misfortune under which this company, like many others of a similar character, labours, is simply the depreciated value of silver. When the company was formed in September, 1888, the value of silver was about 3s. 10d. per ounce. From that period to September, 1889, it fluctuated very little. During the next 12 months (September, 1889, to September, 1890), it varied from 3s. 9½d. to 4s. 9½d., the highest we have ever had it; then for the year ending September, 1891, the variations were from 4s. to 4s. 7½d., and in the following year to September, 1892, 3s. 4½d. to 4s.; at this date it stands at 2s. 4½d. per ounce. You can, therefore, readily understand our position when I tell you that a depreciation from 3s. 10d. in September, 1888, to 2s. 4½d. at this moment, or a fall of 1s. 5½d. per ounce—equal to 37½ per cent, sufficiently accounts for our present position, and if the maximum price of silver be taken during the life of the company at 4s. 9½d. in 1890, and the existing value of 2s. 4½d. (where there is a difference of exactly 50 per cent.), the contrast is still more striking. As to the future value of silver, where such a divergence of views by the most eminent men in the political and financial world exists it would be extreme presumption on my part to predict. All we can do is to live in hopes, with the knowledge that if silver becomes enhanced in value we are in possession of a well-developed mine, an establishment capable of treating the product to the best advantage, and an organisation ready to bring about a maximum of efficiency and yield, restoring to us a return such as we have experienced in the past, and assuring us of a substantial dividend on our investment. You will have observed in the accounts each year, as presented to you, considerable payments in respect of income tax. Mr. Wenban, as you know, is by far the largest shareholder in this company, and the dividends to which he has from time to time been entitled have been paid to him in America—the money for such purpose not having been remitted from this country; in fact, it was never sent here, and, therefore, it is contended that the amount of dividend paid to Mr. Wenban was not liable to income tax in this country. In other similar cases companies have proceeded against the authorities here, and succeeded in establishing their claims for a return of the money paid under the circumstances referred to. This being so, we some time back took steps to recover what has been paid for income tax on monies to which Mr. Wenban was entitled, and we are sanguine that the amount, a sum exceeding £3000, will be refunded to the company. Finance: Before concluding, there is a matter to which I think it necessary to refer—that is, the present financial position of the company. The funds at its disposal are practically exhausted, for, whilst developments were being continued, there has not since May, 1892, been any return of moment. At the urgent request of Mr. Wenban, the board realised the investment in railway stock in this country, and applied the proceeds towards the cost of developments recommended by him. This amount has now been expended, and it is proposed that, to carry on the works suggested by Mr. Wenban, debentures be issued to provide the necessary capital. Probably some of the shareholders may be disposed to take up debentures, but, should they not do so, Mr. Wenban has already expressed his willingness to provide the funds requisite to carry on the works. (Cheers.) In conclusion, I beg to propose "that the report of the directors and statement of accounts to September 30th, 1893, be, and they are hereby, received, approved, and adopted."

Mr. W. P. SHAW (director), seconded the motion.

Mr. SOUTTER asked whether there was no other method of obtaining money than by the issue of debentures, which he thought a very undesirable one, seeing that, as there was little chance of being able to pay the interest on the bonds, the holders would be entitled to take possession of the mine, and so displace the interest of the ordinary shareholders. His own view was in favour of the issue of preference shares.

The CHAIRMAN explained that as yet nothing definite had been done in the matter. He had simply proposed the idea for the consideration of the shareholders.

Mr. MORRIS congratulated the board and the managing director upon the way in which they were conducting the mine in times of very great difficulty. Having stayed upon the property for some time, he knew it well, and the Polar tunnel, now nearly a mile long, was a development of the very greatest importance, and one which, in all probability, must ultimately lead to the most favourable results, even though the present extraordinary depression in silver were to continue. When at Cortez he examined the St. Louis ledge, and came to the conclusion that at that time there were some very rich deposits of ore remaining there. Consequently it had been a source of great satisfaction to him to read in the report that the St. Louis ledge had been cut by the Polar tunnel, and that

It was intended vigorously to prosecute the work of driving on the vein. To his mind there was no shadow of a doubt that either in longitudinal driving or in rise they would find some deposits of silver ore rich enough to enable them to compete, even at the present price of silver, with the most successful silver mine of the day—the Broken Hill Mine, in Australia. As to the future of the price of silver, he was unable to hope for an increase in its value being effected by artificial means for the benefit of the owners of silver mines. Certainly the Government of this country would never lend itself to anything of the kind. As they were aware, the present depreciation of silver was caused by the enormous output from the one mine he had mentioned, which was turning out half a million tons of stuff in a year. No mine, however, could persist in such an output for many years. Some time—not, perhaps, in months, but in years—the immense output would come to an end, and, in that event, silver would again rise to a reasonable price. Taking these things into consideration, he was hopeful as to the price of silver, and especially hopeful as to the future of that particular mine. The offer made by Mr. Wenban for the provision of money seemed to him a very handsome one. No doubt that gentleman, as the largest shareholder, had the interest of the company at heart. In conclusion, he might say that he felt sanguine, too, as to the proposed debenture issue, and would certainly subscribe for his proportion.

Mr. PONTIFEX said that a comparison of the prices of silver brought one to the conclusion that the mine could be worked now at a profit of 1½d. an ounce, and, that being so, he thought it a pity the operations had been stopped. Indeed, he could hardly see where lay the inducement for any one to subscribe for the debenture issue.

Mr. S. J. WILDE asked whether there could be no reduction in the London charges of the company. He also referred to the salary of Mr. Wenban, which he thought a large one.

The CHAIRMAN, in reply to the observations which had been made, said that the policy of stopping the working of the mine had been put into effect because the managing director had come to the opinion expressed by Mr. Moreing as to the hopeful future of the mine. Further, he had been guided by the combination among the owners of silver mines to stop working with the view of reducing the output and raise the price of silver.

Mr. NORRIS reminded the shareholders that Mr. Wenban had been the chief and largest sufferer by the stopping of the operations. His one desire was to do the best possible for the interests of the company, and he had gone the length of promising that, if money were required, he would find it. If the mine were restarted at the present time he felt sure that the profits would not be such as to permit the declaration of a dividend. As to Mr. Wenban's salary, it should be remembered that by far the greater portion came out of his own pocket. Upon that matter, however, as upon all others, he felt sure that Mr. Wenban would be found perfectly reasonable and anxious to act in the interests of the company. He might mention that the London expenses, to which reference had been made, had been reduced by one-half.

Mr. MOREING expressed a strong belief in the wisdom of the policy pursued by the managing director in discontinuing operations at the mine until the price of silver should have risen.

Mr. WILDE and Mr. SOUTTER concurred in that view.

The motion for the adoption of the report was then put and carried.

The retiring directors, Mr. E. J. Carroll and Mr. John Allen, having been re-elected, and the auditor, Mr. J. D. A. Norris, having been reappointed, the meeting terminated with hearty votes of thanks to Mr. Wenban, the board of directors, and the Chairman.

BOOYSEN LAND AND MINING COMPANY, LIMITED.

Reconstruction carried with practical unanimity.—
The company put upon a sound basis.

An extraordinary meeting of the Booyesen Land and Mining Company (Limited) was held on Monday, at Cannon-street Hotel, the chair being occupied by Mr. J. CHISHOLM.

The SECRETARY (Mr. C. Wallington) read the notice convening the meeting.

The SOLICITOR to the company having read the proposed agreements.

The CHAIRMAN said: Ladies and gentlemen, at our last meeting we were in this position—we had failed to obtain the requisite majority for the proposed scheme of reconstruction, which imposed a liability of 5s. a share. Some of the largest shareholders objected, and advocated a liability of 10s. per share. The main ground on which they based this heavier liability was to remove any possible chance of a further reconstruction. We discussed the position with several of the principal shareholders, and the scheme now placed before you is the outcome of that discussion. Now, although this scheme imposes a liability of 10s. per share, the additional 5s. appears only as a reserve liability—that is to say, the second 5s. cannot be called up until the shareholders have assembled in general meeting, and have signified their approval and sanction to the step being taken. Shareholders are thus completely protected, because the second 5s. cannot be called up except in case of emergency, and then only with their co-operation and consent. The scheme will be recommended to your acceptance by the largest shareholder in the Booyesen Company—Mr. Tapp—who, we are glad to say, has now now joined the board, and looking at all the circumstances, we hope you will give it, as near as possible, your unanimous support. The support in favour of the scheme, which we have already received, represents considerably more than half the share capital of the company. We regard, then, the second 5s. per share simply as a reserve, and see no reason to anticipate that the necessity will arise to call up the whole of the first 5s. per share. As explained at last meeting, the liabilities taken over are not heavy, the chief item being the debenture debt. Out of the 1s. call on application and allotment, all liabilities requiring immediate settlement will be paid off, leaving an adequate sum in hand for the current requirements of the company. A further call of 1s. per share will more than clear the debenture debt, and it may be possible next March, when the debentures mature, to pay them all off. For estate purposes we do not consider that a call of more than 1s. will be required, making altogether 5s. per share, as our estimate of calls that are likely to be made on shareholders to cover all liabilities, cost of reconstruction, and unavoidable expenditure on estate account. Such is the forecast which existing conditions warrant us in making. Unexpected contingencies, however, may arise in the future as in the past, and it is in order to be prepared for these that ample provision has been made. As regards regular or ordinary as distinguished from extraordinary expenditure, it is intended to bring the ordinary annual expenditure within the income of the company. We estimate that the receipts from the property should reach £2000 a year, and our policy will be to reduce ordinary expenditure as far as can be done below this amount without impairing the efficiency of establishments or control. Since our last meeting the two years' prospecting agreement with the Rand Consolidated Deep Level Syndicate has expired. Before it expired the syndicate registered a company for working mines on the Booyesen property, with a capital of £150,000, in shares of £1 each. Of this capital it was proposed to allot to the Booyesen Company a third, or 50,000 fully-paid shares. We are bound to see, in every case before we definitely agree to the formation of a company, that ample working capital is provided for the operations intended to be undertaken, and this is essential to ensure that the company may prove a success. The Chairman concluded by moving resolutions to the effect that the company be wound up voluntarily and reconstructed with a capital of £120,000, in 120,000 shares of £1 each, credited with 10s. paid up, Mr. C. Wallington, the secretary, acting as liquidator.

Mr. TAPP seconded the resolutions, expressing the belief that a

liability of 5s. upon the shares of the company would have simply resulted in the total loss of that amount, while with the possibility of a call of 5s. with a further 5s. in reserve, he was convinced that there was no prospect of a further reconstruction before them. As to the future of the company, he had been reviewing the items of expenditure, and he saw many ways in which reductions could be effected, and he was confident that if this were done their income would in a year or two balance their expenditure. Already they were in receipt of a very respectable income, and as time went on there was no doubt that it would increase as the company's surface rights became more valuable.

Mr. SOAMES suggested that the whole question of reconstruction should be deferred until after the settlement of the matter at issue with the Rand Consolidated Syndicate.

Mr. TAPP urged that the matter should be left in the hands of the directors who held more than a half of the interest in the company. The company's liabilities were pressing, and if the property in South Africa were seized by creditors they would be in a very precarious situation.

The resolutions were then put and carried with three dissentients, and the meeting terminated with a hearty vote of thanks to the Chairman.

COOK'S KITCHEN.

Call of 10s.

A 16 weeks' meeting of the shareholders in the above mine was held on Friday, June 8, Mr. W. PIKE (the proposer) presided.

The accounts showed:—Labour costs, £3243; merchants' bills, £1576; Illogan parish rates, £51; water rents, £57; total debits, £4929. On the other side, 53 tons 5 cwt. of tin have been sold for £2360; extra carriage, £9; Cornwall Arsenic Company, £13; discounts, £9, leaving a loss on the 16 weeks' working of £2537. There was a total balance against the adventurers of £3626.

Captain JOSIAH THOMAS, the manager, in supplementing the report, said they thought at the last account that they would have holed the 420 to the No. 3 winze in three months from that date, or rather less, so that they calculated on having a full month's stopping between those two levels. That would have increased their returns of tin, but owing to the water in No. 2 winze they had not been able to sink, and so the driving of the eastern end had been delayed. Consequently the returns of tin were just exactly the same as during the last four months, there being no new ground that they could stop. He thought they might fairly calculate on having a considerably increased return next time, because they knew there was a good piece of ground that they had driven through west of No. 3 winze, which they would be able to stop in a month from now. (Hear, hear.) As the 420 continued to be driven east it would no doubt before long unwater the No. 4 winze, where they had some very good tin—on the whole, rather better looking stuff than they had had in any other point—and as that end progressed they would also be opening some tin ground there. The eastern ends were about the same value as they were four months since, all opening moderately productive tin from £12 to £15, and one end £18 per fathom. What they wanted above everything else was a better price for tin, but as to when it was coming he should not like to express an opinion; but it was generally expected that after midsummer, especially if the American tariff was taken off, that there would be a better demand for tin. One thing they knew was that £40 a ton was not of much good but for very few Cornish mines. If they had no hope they would be poor miserable creatures; they had seen tin low before, and had seen it advance, and when trade generally improved he thought there was every probability of tin improving too. The engine shaft ought to be sunk again before very long, but he supposed they had better open up the eastern ground at the 420 before they again began sinking. If the lode was getting smaller in the bottom of the mine the prospects would be gloomy, but it was maintaining its size. It was 20 feet big, and the lode in Dolcoath was coming down towards it.

In reply to Mr. VYNER and Mr. W. H. RULE, Captain JOSIAH THOMAS said the boundary between Cook's Kitchen and Dolcoath was the great crosscourse, and both the mines were under a penalty of £5000 not to break into it. The mines to the east, Cook's Kitchen, Tincroft, and East Pool, were holed to each other at various levels, but Dolcoath was quite separate. It had always been the policy of the Tisbury office, and very properly, that the great crosscourse should not be broken, and so they had kept clear of it on both sides.

Mr. VYNER asked whether the eastern shaft at Dolcoath was not in Cook's Kitchen. (Laughter.)

Captain THOMAS: Not by 25 fathoms.

Mr. VYNER said he should like to see a section prepared with a line showing the boundary and the levels crossing in from Dolcoath.

Captain THOMAS said there was such a section prepared at Dolcoath, and issued to the shareholders. None of the levels were within 20 fathoms of the boundary.

Mr. VYNER thought that some of Dolcoath levels were in Cook's Kitchen sett, and that Dolcoath had been making dividends out of Cook's Kitchen. (Loud laughter.)

Captain THOMAS said there was a line drawn from stonepost to stonepost, which was the boundary, but if the crosscourse underlay east of that line Cook's Kitchen was not to break it, and if it went west Dolcoath was not to break it.

The CHAIRMAN said they had received the draft of the new lease, which was on the same basis as the Wheel Basset lease. They were negotiating for a slight modification, which, if granted, would make the lease one of the most reasonable granted recently in the county.

Mr. W. H. RULE expressed the opinion that some of the materials might be bought more economically by contract, and the floors should be laid out for catching the waste tin.

On the motion of Mr. VYNER, seconded by Mr. N. TRESTRAIL, the accounts were adopted, and a call of 10s. per share made.

THE FREDERICK THE GREAT GOLD MINING AND RECOVERY COMPANY, LIMITED.

Operations well underweigh.—A brilliant outlook.

The statutory meeting of the Frederick the Great Gold Mining and Recovery Company (Limited) was held on Thursday, at St. George's House, the chair being occupied by Sir ANDREW CLARKE.

The SECRETARY (Mr. T. H. Evans) read the notice convening the meeting.

The CHAIRMAN said—Gentlemen, this is only the statutory meeting, giving the shareholders an opportunity of attending and ascertaining the condition of the company, and what progress has been made. I can only say that so far our progress has been satisfactory. Our whole capital has been subscribed, and we have already commenced work on the mine. We have a telegram here from our engineer saying that the water has been practically kept under, and that they are beginning to sink the new shaft. Mr. Crawford and Mr. Eskdale have also arrived on the spot to look after your interests, and their report as to the management of the mine is highly satisfactory. There is also a letter dated May 7, asking for certain instructions, but what in that communication is of the greatest interest, as indicating the value of the property, is the anxiety of independent miners to work upon tribute within the area of your property. This willingness on the part of practical men, who are themselves judges of mines, to give their individual labour in opening up the mines upon tribute will, I hope, prove beneficial to them, and lead hereafter to a knowledge of our property, so that, if deemed advisable, other shafts may be sunk in other directions. The lawyers advise us that everything is

in order both here and on the spot. As you are aware, there is upon the property a considerable quantity of tailings from the old workings. Ten tons of those tailings are on the way to this country, where they will be subject to experiment by experts so as to ascertain the best way in which we can utilise them. My friend and colleague upon my left (Mr. Brinton) has had a great deal of experience in these matters, and you will be glad to hear from him some few remarks in reference to them. In conclusion, I can only say that we have every confidence that the hopes and expectations held out in our prospectus will be realised. Our machinery is in good order, and everything looks like steady and profitable work. For the rest I should be happy to answer any questions shareholders may have to ask.

Mr. BRINTON said that the question of the treatment of the tailings was a matter of great importance for them as for every company. As a member of the Durban-Rodepoort Company, he could only say that the treatment of the tailings had been greatly advantageous to them, and had been conducted in a manner highly beneficial to the shareholders. Speaking with every caution, and in remembrance of the fact that the question of the treatment of tailings must differ in the mine in which they were interested from that of the district in South Africa, with which he was personally familiar, there could be no doubt that the possibility of advantageously treating the tailings was one of the most remarkable and fruitful considerations affecting any mining property in existence.

Mr. ELLIOTT said he could testify from his personal knowledge of the mine that there were many thousands of tons of tailings in Frederick the Great. From 1880 to 1884 he was intimately connected with the property, and he was sure the heap of tailings there must be of vast magnitude, while they must, with equal certainty, be free milling tailings, seeing that they were all got above the 580 feet level. In 1884 they were working in rubble. To his knowledge every word in the prospectus was true and devoid of exaggeration. The history of Frederick the Great was a curious history, and it was also very singular that the mine should have come to England at all. No doubt the explanation was that the people of Victoria were overwhelmed with misfortune, and could not profit by it themselves. Originally the mine was worked by a man named Charlton—the best practical miner within the speaker's acquaintance. Charlton got a lease of the Frederick the Great from the executors of its late owner, and worked it for many years, certainly taking from it more than £400,000, of which sum fully £100,000 was spent upon the property itself, which was timbered in a highly-efficient manner. One day, however, he let the water in, and the executors of its late owner were in despair. Just at that time Mr. Charlton's agent stepped in and bought the mine, and that gentleman returned and pumped the water out again, when the timber was found to be quite as good as before. Charlton was so delighted that he proved the great reef at the 580 feet level for about 800 feet. This he always said was the heart of the mine, and he had expected to take a million out of it. However, he died. Then the tributaries of the Frederick the Great came in and took out of the mine a quarter of a million sterling. After that, from a variety of circumstances, the mine remained dormant, and little was done to it from 1885 to the present time. But the 580 feet level remained exactly as it was, and there they were going to put down the shaft. Mr. Eskdale and Mr. Crawford knew every hole in the Frederick the Great, and would be able to make any money that was spent upon it go twice as far as anybody else. They would empty the mine with the pumping machinery they had got, after which they would carry the great shaft down 400 feet. By that time next year he expected to hear that they were opening out on the reef, and he could not help thinking that Charlton's anticipations would be realised. (Cheers.)

The CHAIRMAN having thanked Mr. Elliott for his remarks and the shareholders for their attendance, the meeting terminated with a hearty vote of thanks to the board.

SOUTHERN INDIA ALPHA GOLD MINING COMPANY, LIMITED.

Proposals for a new syndicate.—The new agreement approved.

The ordinary general meeting of the Southern India Alpha Gold Mining Company (Limited) was held yesterday, at the offices of the company, 17, Victoria-street, Westminster, and was followed by an extraordinary general meeting.—Mr. LESLEY G. PROBYNS presided.

The SECRETARY (Mr. Richard Loam) read the notice convening the meeting.

The CHAIRMAN said: Gentlemen, there are two points of especial interest in the report to which I wish to call your attention. First of all there is a new agreement, or rather a modification of the existing agreement, with the Rajah of Nellore, which will be submitted for the consideration of the extraordinary general meeting to be held after the close of this meeting. The new arrangement with the Rajah, so far as this company is concerned, is certainly satisfactory. Instead of having a fixed rental to pay for the remaining 34 years of our lease our payments to the Rajah will in future depend upon the gold which may be extracted from the mine, either by ourselves or by those who work it. In saying that this is satisfactory I cannot conceal from myself, and I do not wish to conceal from the shareholders, that a certain responsibility is incurred by the adoption of this modified agreement. It would be unfair to the Rajah, and dishonourable on our part if, directly we got him to modify our agreement, we determined to wind up the company. Therefore, if we adopt this modified agreement it means that we are bound to materially endeavour to further develop and test the property. That brings me to the second point of interest in the report, which is the proposal that a syndicate should be formed to develop the Wynaad mining district. We, ourselves, are of opinion, as already we have told you, that the Wynaad district has not yet been sufficiently proved, and a good many of our shareholders join in that opinion. Not only the holders of the shares upon which there is a still a liability, but also the holders of fully-paid shares, have expressed to us a strong desire that we should endeavour to prove the Wynaad district more than it has been proved in the past. As you know, a considerable amount of money has been spent in the district, not only by this company, but by the Indian Gold Mines Company of Glasgow, the Perseverance Company, the Indian Consolidated Company, and by others, and that money has been spent with unsatisfactory results. It has, however, shown that there is gold in the Wynaad, and that there are great natural advantages in the district in the way of water power, &c., owing to which the cost of mining and milling the quartz is comparatively small—very much smaller, for instance, than in the Mysore district. Unfortunately, however, it has shown also that the gold is mixed up with pyrites, and the ore being generally of a very refractory character, the process of separating the gold from the pyrites is both difficult and expensive. If a syndicate be formed it will have two objects. Our idea was that its main object should be to test the Alpha property, to take as a basis of working Mr. Phillips' report, circulated among the shareholders, and to prove the mine in that direction. We felt that if anything satisfactory resulted upon our property it would benefit not ourselves alone, but all the properties in the Wynaad not interested in the Alpha property. We find, however, that though there was a considerable consensus of opinion as to the advisability of something being done, an opinion was expressed outside our own shareholders, and to a certain extent among our own shareholders, that the most hopeful way of spending our money would be in the direction of proving our tailings. At present we have not gone into that question, and I merely mention it to show how the matter stands. Then the two points which we hope the syndicate, if it be formed, will take up are, first of all, the treatment of the tailings, and, secondly, the development of the mine. I need scarcely say that if a syndicate be formed it will be so arranged that those who put their money into it will get the biggest share of the profit. Of course, if anything satisfactory turns

out, it cannot fail to benefit the Alpha shareholders. There are not, I think, any more remarks that I need make. We have entered very fully into what we have done during the past year in the report, and with these remarks, I will propose the first resolution:—
“That the directors’ report and audited balance sheet be, and hereby are, received, approved, and adopted, and that the directors be given discretionary power to contribute towards the preliminary expenses of any syndicate being formed up to the limit mentioned in the report—£100.”

Mr. W. DE CAUX seconded the motion.

Mr. NORRIS thought the directors were to be heartily congratulated on the arrangement they had made with the Rajah. It should not be forgotten, however, that the Rajah had been in receipt of a comfortable little annuity from the company for some years, while the shareholders had got nothing. The company had been in existence somewhere about 20 years, and had spent something like £15,000. A lease was then granted to the Indian Gold Mines Company, of Glasgow, who worked the property for many years, at a very considerable outlay. They well knew that the result of the mining was unsatisfactory. The Indian Gold Mines Company had at that time not only the services of Mr. Phillips, but also the advice of several engineers, and still they had been unable to make the property successful. He could not help thinking that it would have been better if their own company had been wound up a few years ago, when there would have been a return to the shareholders, and he hoped that this course would be taken unless something could be done favourable to the company within the next few months.

Mr. DE CAUX reminded Mr. Norris that the company had no intention of working the property themselves.

Mr. NORRIS had no desire to reflect on the board. He was sure they did their utmost for the company.

Mr. SCRATCHLEY said the shareholders must bear in mind that if the company were wound up now, it would be a breach of faith with the Rajah.

The SECRETARY read two letters from shareholders resident in Scotland protesting against continuing the affairs of the company.

The motion proposed from the chair was then put and carried unanimously.

Mr. DE CAUX and Mr. Scratchley were re-elected directors, and the auditors, Messrs. Deloitte, Dever, Griffiths, and Co., re-appointed.

A hearty vote of thanks was, upon the resolution of Mr. NORRIS, accorded to the directors.

The CHAIRMAN, in returning thanks, assured the shareholders that the non-success of the company was not attributable to any lack of effort on the part of the directors.

An extraordinary general meeting was subsequently held, when, on the motion of the CHAIRMAN, a resolution was unanimously adopted, approving and ratifying the agreement with the Rajah.

THE LAGUNAS SYNDICATE, LIMITED.

A promising company.

The sixth ordinary general meeting of the members of the Lagunas Syndicate (Limited) was held yesterday, at Winchester House, Old Broad-street, Colonel JOHN T. NORTH (the Chairman) presiding.

The SECRETARY (Mr. John H. Gretton) read the notice convening the meeting, and the report was taken as read.

The CHAIRMAN said that the Syndicate had formed a company out of part of the property, and in a few days the prospectus would be issued. The members would recollect that in 1889 the shares of the Syndicate were selling at as much as £700, and possibly some of the members bought them thinking they were buying a good property. Since then they have been as low as £150, but he was pleased to see they had again gone up to £500, and in his opinion they would reach £1000, or even more, before six months had elapsed. The machinery was now in operation, and they were aware that they possessed the very best grounds on the Pampas. They had also found very good water, so that there was nothing to stand in their way, and they could now go on and prosper. (Applause.) This line was 50 miles farther off than the oficinas in the south, but they got the nitrate down at the same rate, having a contract with the Nitrate Railways for 8d. a quintal, which was another favourable feature in the situation. (Applause.) It would be seen that they were dividing the £100 shares into £5 shares, payable to bearer. The people of the Continent did not wish all the good things to be kept over here, but as was only reasonable, they wished to participate in them. When in Antwerp the other day, he saw the nitrate exhibit, which was a great credit to them, and he found, amongst other things, that the nitrate merchants there wished to be interested in this business; so that no doubt a good many of them would make application for shares in the new company, which he believed would be a great success. In the first place, the whole thing would be taken up, but the syndicate shareholders would be provided for, one third having been reserved to them. They would also have the properties on the remaining part of the ground, on which oficinas could be erected; in fact, they were now getting estimates for another oficina to commence at once, as they could not supply the demand for nitrate. At the time when the shares were sold at £700, in 1889, the market for nitrate was overstocked, and they could not begin working. Now, however, they were unable to supply the demand, so that they were putting up machinery to make an amount of nitrate equal to the consumption. The Chairman concluded by proposing the adoption of the report and accounts. (Applause.)

Mr. ROBERT HARVEY seconded the resolution, which was put and carried unanimously.

Mr. MAURICE JEWELL then moved the re-election of the retiring directors, Col. North, Mr. Harvey, and Mr. Edmondson.

Mr. R. R. LOCKETT seconded the resolution, which was agreed to *sem. con.*

The CHAIRMAN moved “That this meeting recommends and approves of the calling up by the directors of the uncalled capital on the £50 shares of the company at an early date to be fixed by the directors.”

Colonel CHURCH seconded the resolution, which was put and carried.

A SHAREHOLDER proposed the re-election of the auditors, Messrs. J. O. Chadwick and Son, for the ensuing year, at the remuneration of 50 guineas.

Mr. J. J. SMITH seconded the re-election of Messrs. Chadwick. Mr. Chadwick was known to him as a most careful and painstaking auditor, and one who deserved the confidence of every shareholder of the company.

The motion was put and carried.

The CHAIRMAN next moved, “That the share capital of the company, which at present consists of 1100 shares of £100 each, fully paid up, and 3300 shares of £50 each, upon which £16 per share has been called up, be sub-divided into 55,000 shares of £5 each, the holder of each £100 share taking in lieu thereof 20 fully paid up shares of £5 each, and the holder of each share of £50 taking in lieu thereof 10 shares of £5 each with 32s. per share paid up thereon.”

Mr. GEO. FLEMING seconded the resolution, which was put and carried.

The CHAIRMAN also moved: “That the existing Articles of Association of the company, which were registered on February 2, 1889, be and the same are hereby rescinded and annulled, and that in lieu thereof the Articles of Association which are identified by the signature of the Chairman of the meeting, be and the same are hereby adopted as the Articles of Association of the company.”

Mr. T. DOUGLAS MURRAY seconded the motion, which was also agreed to.

The CHAIRMAN said that that was all the business of the meeting. He believed the shareholders had got a very good property. They were making a good deal of money now—he could not say how much. (Applause.)

Mr. JOHN FLEMING proposed a vote of thanks to the Chairman for his conduct in the chair. Colonel North had great knowledge of the country, and an intimate acquaintance with the property in which they were so much interested. They were not groping in the dark like people interested in many other concerns, but were connected with an industry of an important and national character, because they were producing an article which could not be done without. They were interested in an excellent property, and his advice to them was to hold on to their shares. (Applause.)

Mr. BOWMAN seconded the resolution. The manner in which Colonel North had conducted the proceedings was an example to the Chairman of many other companies with which they were acquainted. (Applause.)

The resolution was put and carried by acclamation.

The CHAIRMAN, in reply, said that the directors had worked without fees, and now they looked forward to receiving excellent dividends. (Applause.)

The proceedings then terminated.

LUIPAARD'S VLEI ESTATE AND GOLD MINING COMPANY (LIMITED).—The sixth ordinary general meeting of the shareholders of the Luipaard's Vlei Estate and Gold Mining Company (Limited), was held on Wednesday, at Cannon-street Hotel, E.C.—Mr. H. G. H. NORMAN presided, and, in moving the adoption of the report and accounts for the year ended June 30, 1893, said that when he explained the reasons of the delay in holding the meeting, he was sure they would agree with him that it was the only safe and prudent course to adopt; in fact, the circumstances of the case rendered the postponement imperative. They took over three subsidiary companies as from January 1, 1891, and, with some exceptions, from that date nearly all their efforts had been devoted to proving the Botha's reef on the mynpacht. The first report they received was from Mr. Boucher, dated January 6, 1892, in which he stated that he was satisfied with the value of the mine, but it was undesirable to erect any crushing machinery until the mine had been proved. Mr. Franklin White came to the property on October 30, 1892, and he confirmed the opinion of Mr. Boucher as to the value of the mine, but was of opinion that it must be thoroughly opened up before the erection of the crushing machinery. They had previously received a promise of funds sufficient for the supply of crushing machinery on a large scale, conditional on the value of this portion of the property being proved. Unfortunately, the work on the Botha's was cut off by a large fault in the reef; but the manager reported that it could be picked up with certainty on the other side by driving adits. But for the existence of that fault they would have called the annual meeting early that year. On April 5, Mr. Franklin White reported that they had picked up the lost reef to the south of the main fault in the mynpacht workings, and it had been cut through. They were about calling the meeting in May when they were informed that Mr. Charles Rudd (the managing director of the Consolidated Gold Fields of South Africa, Limited, which company held some 90,000 of their shares) was about to visit the property, and the board thought it better to wait to learn his views of the mine. They had since received a letter from Mr. Rudd, in which he stated that he had thoroughly inspected the works now going on upon the mynpacht, and he was of opinion that the soundest policy was to continue developments for some months before proceeding to erect the battery. The letter went on to state that the Consolidated Gold Fields of South Africa was willing to lend £40,000 to the company at 8 per cent., to erect crushing machinery, &c. He thought they might infer from that letter that Mr. Rudd was fully satisfied of the value of the property. The mill would take six or nine months to erect. Those were the reasons which led to the delay in calling the meeting. As far as mining was concerned, their position was assured, and they now had the necessary funds at their command to erect crushing machinery.—Mr. Hoskyns seconded the motion, which was agreed to.

THE WASSAU (GOLD COAST) MINING COMPANY (LIMITED).—The ordinary general meeting of the shareholders of the above company was held at Cannon-street Hotel, on Tuesday.—Mr. E. Bishop, M.D. (the Chairman), who presided, in moving the adoption of the report and accounts, asked the shareholders to excuse his rising, as he was very unwell. He was glad to be able to continue the same cheery, hearty tone of their last meeting. Though they were paying no dividend yet, the property was making a fine return. The circulars issued every month had kept the shareholders advised as to the returns, and the figures showed the steady improvement that had taken place in the average yield of gold per ton of ore for the last four years; that for 1893 being 1 ounce 12 dwts., and the value of the gold won more than double that of any previous year:—in 1890, 2515 tons stamped yielded 1175.23 ounces gold (8 dwts. per ton), in value £4487 16s. 2d.; in 1891, 2747 tons, 1618.43 ounces (12 dwts. per ton), £6131 6s. 5d.; in 1892, 2190 tons, 2051.85 ounces (18 dwts. per ton), £7828 17s. 7d.; and in 1893, 2753 tons yielded 4386.45 ounces (1 ounce 12 dwts. per ton), in value £16,754 11s. 5d. The lode, though not large, was well defined, continuous, and contained between excellent casing walls. In referring to the accounts, it would be seen that there was a net profit of £4286 16s. 3d. Their excellent manager, Mr. Sam, was returning home for the benefit of his health, and they had found a most capable *locum tenens*; they had strengthened the staff at the mine by sending out several Cornish miners. All the evidence went to show that the ore improved the deeper down they went, and when they had the shafts sunk further below the water level, and the other machinery now erected, at work they hoped to be able to show a considerably increased output, at least 500 tons a month.—Mr. F. Swansy, in seconding the adoption of the report and accounts, stated that they had made a satisfactory arrangement for the treatment of the tailings at the mine, of which they had a considerable quantity, and in which, he believed, they had a fine property. They had not got their shafts down as quickly or as deep as they expected, but they were doing their utmost to strengthen the staff at the mines. The new 10 stamp battery had continued to work well, and the old battery had been completely re-arranged, and provided with new boxes, and 12 heads of stamps of 750 lbs. each in place of 24 heads of 450 lbs. The cost had been placed to the debit of the mine working account.—The report and accounts were unanimously adopted.—Mr. F. Swansy was re-elected a director, and Messrs. Ball, Baker, Deed, Cornish, and Co., were appointed auditors.—The Chairman proposed, and Mr. Swansy seconded, a hearty vote of thanks to Mr. Sam, the manager, and the staff for their untiring zeal.—The motion was carried.—The proceedings then terminated with a hearty vote of thanks to the Chairman and board.

THE VAN RYN ESTATE AND GOLD MINING COMPANY (LIMITED).—An extraordinary general meeting of the above-named company was held at Winchester House on Thursday, when the resolutions which were passed at the extraordinary general meeting of the company held on the 28th May last, were submitted for confirmation as special resolutions. Mr. Thomas J. Bewick presided.—The resolutions were carried unanimously.

ROYAL CORNWALL POLYTECHNIC SOCIETY.—The sixty-second annual exhibition of this society will open at Falmouth on Tuesday, August 28th, 1894. Medals and prizes will be offered in the following departments:—Special exhibition of photo-mechanical process work; photo-mechanical prints; photo-mechanical printing; photo-chromatic processes; originals for photo-reproduction; photo-mechanical apparatus and materials, &c.—Mechanics (Board of Trade protection granted to all new and unpatented inventions); Steam engines and boilers; machinery and models; mechanical and other scientific inventions and improvements; joinery, cabinet making, carving, coach building, turnery, pattern making; granite dressing, &c. Productions in the various branches of naval architecture; essays and scientific papers, &c.—Mineralogy and chemistry: Analyses of rocks or minerals, &c.; monographs on groups of salts; collections of artificial crystals.—Fine Arts: Pictures and drawings; sculpture; modelling; art metal work; wood carving; art needle-work, &c.—Photography: Photographs by professionals and amateurs; photographic apparatus.—Natural History: Essays, local observations, collections of specimens, monographs, &c.—“Lander” Competition: maps and essays on the granaries of the world.

MISCELLANEOUS MEETINGS.

THE PETROLEUM ASSOCIATION.

A CONFERENCE of the members of the Petroleum Association was held on Thursday at Winchester House, under the Chairmanship of Mr. R. W. EVANS, for the purpose of selecting a new representative council to carry out the re-organisation of the Petroleum Association.

The CHAIRMAN, at the outset of the proceedings, said it was for the meeting to decide whether it were advisable that the association should expire; or whether the interests of the trade would demand its continuance. Their own opinion had been pretty strongly expressed in the circular to the effect that it was imperatively necessary in the interests of the trade that the Association should be continued. Proceeding to recount the early history of the association, the Chairman said that it was founded in 1866, and was incorporated in 1885. The members forming the Petroleum Association in the old days were mainly gentlemen engaged in the wholesale trade, and the principal work of the association was to test samples of petroleum, the revenue from which was sufficient to pay the not inconsiderable charges of the establishment maintained. As time went on, however, the amount of testing carried out decreased, and the income was not sufficient to meet the expenditure, occasioning a frequent demand upon the reserve fund of the association. The council felt it their duty to put the association upon a more stable foundation, and accordingly they invited all the branches of the trade to come within their fold for protective and other purposes. As a result of this appeal, which was by circular, there were a hundred new members added to the list, but still there remained a balance of expenditure over income, and still calls had to be made upon the reserve fund. Feeling, as business men, that it would be impossible to go on under such conditions, they resolved to give up the offices in Gracechurch-street, terminate their engagement with the secretary and chemist, and dispose of the furniture and fittings. This they did, and they further accepted the very kind offer of one of their number to give them the use of an office. It was also determined to inaugurate a conference of members of the trade, in order to elicit their views upon the subjects he had mentioned. The objects of the formation of such an association were manifold. First and foremost, there was the necessity for making arrangements for protective purposes. Under the pressure of public opinion and the Press, there would certainly before long be introduced into Parliament some legislative proposals which would affect them, and he could not help thinking that any trade would occupy a ridiculous position if it were unable to approach the supporters of legislation through a central representative body. They would remember how the “Inflammable Liquids Bill” of 1891, which would have made it impossible for trade of any magnitude to be carried on, was withdrawn on the representations of the Petroleum Defence Committee. The opposition of such a committee would, however, be insignificant as compared with such an opposition as could be offered by an association similar to the one they proposed to form. In fact, he was unable to understand the wisdom of having two bodies concerned in defending the petroleum trade, and he hoped that the result of that meeting would be that the Petroleum Defence Committee would come forward and merge themselves in the association. Beyond the duty he had already mentioned, a multitude of useful duties could be performed by such an association. There would be, for instance, the task of collecting information bearing upon the trade at a central bureau. In conclusion, the Chairman moved a resolution to the effect that it was highly desirable the association should be supported by all branches of the trade.

Mr. TASKER seconded the motion, expressing the view that the construction of the lamp, rather than the storage of the oil, should be conditioned by legislation.

Mr. LEONARD spoke of the magnitude of the the trade as showing the importance of its having a representative central association. At the same time, he was inclined to doubt whether the interests of the oil and lamp trades were identical, and upon that account he should be inclined to exclude the latter trade from the scope of the association.

Mr. ALLEN urged that all differences should be sunk so that they might secure a thoroughly representative association.

After some further discussion, the resolution was put and carried.

CEARA HARBOUR CORPORATION, LIMITED.

Difficulties overcome.—Works resumed.—Encouraging prospects.

The eighth ordinary general meeting of the Ceara Harbour Corporation (Limited) was held on Thursday, at the offices, St. George's House, Eastcheap, E.C., Major-General G. DELA POER BERSFORD (the Chairman) presiding.

The SECRETARY (Mr. T. H. Evans) having read the notice convening the meeting.

The CHAIRMAN said: Gentlemen, you have all seen the directors' report, and I do not think that I have anything to add to what is contained in it. The original debenture holders have been so good as to allow two years' interest to be spent on the works, taking their interest in preference debenture scrip or deferred warrants. The dredger is now at work, and the company has sent out more wagons to bring down from the quarries the stone for the breakwater. There was always a difficulty in getting stone for this breakwater, which, I hope, has now been overcome. The board has placed and allotted £9000 additional preference debentures, and has paid off the principal part of the liabilities in preference debenture bonds, including the debt to the contractors shown in the balance sheet. The loan that we had to get from the bank has been paid off. We have every reason to believe that the Brazilian Government will continue to pay the guaranteed interest, as it has done in the past. The harbour is much required at Ceara, and the Government has always been most loyal to the corporation, and helped us in every way; and I must say the contractors, in paying money out of their own pockets when we were in difficulties, have behaved very loyally to us. Modified plans have been sent home, and have been under consideration. Whether these plans will come to anything or not remains to be seen, but if they do not we have provided for sufficient capital on the issue of debenture bonds to finish the works on the original plans. We have had great difficulties to contend with in the revolution, and one thing and another has upset everything, but, with the help of the Government, we have pulled through so far, and I hope we shall continue to pull through and make the business a success. I now beg to move, “That the directors' report and balance sheet be received and adopted.”

Mr. M. M. MOORE: I have much pleasure in seconding the adoption of the report and balance sheet. As the Chairman has said, our enterprise has not always gone along so smoothly as it might have done, and it has met with the drawbacks that many other enterprises, especially of late years, have met with. But we have been in very good hands. We have had a high-class firm of contractors, who have stood by us very loyally, and when at times we have seemed to be trembling on the verge of what might have been deep water, they have come forward with their own means and their own exertions, and put matters straight again. We have relied on the Brazilian Government, and not without good reason, for they have been very punctual in the payment of the guaranteed interest, and it was for the advantage of the shareholders, and of all connected with the enterprise, that the debenture holders on the last occasion did not receive the interest which some of them thought they might have been entitled to. The proceeds were used to clear the company of debt with which it could not have gone on so satisfactorily, and to put it on its legs more firmly.

SPECIAL CORRESPONDENCE: COLONIAL AND FOREIGN. OUR PARIS LETTER.

The Metal Market.—Activity in Gold Mining.—Mining in French Guiana.—Valuable Discovery of Gold.—Proposed Import Duty on Lead.—A New Coal Field.

IT is a satisfactory feature of the mining market that while speculation generally is very quiet, there is a noticeable improvement in the position of mining scrip. Copper continues to occupy a more favourable position than could have been expected, and the future of the metal is much improved now that an arrangement is being come to between the Elmore Copper Company and the Société des Métaux, under which they will avoid competing against each other. This reported arrangement coincides with the re-admission of M. Secretan into the Société des Métaux. If this attempt to avoid competition succeeds, it cannot fail to have a beneficial effect upon copper, as the metal is now in a position which requires very little stimulus to induce it to take an upward turn.

Speculation is at the present moment particularly active in gold mining. Several new companies are in process of formation, one of them with a view of acquiring auriferous property in Uruguay. If this latter company is to succeed it will certainly have to improve upon the administrative methods which have been so fatal to the concern now in liquidation. The complicated system of management employed in the French gold mining companies swallow up any profit that may be secured, and leaves nothing but hopes and promises upon which the unfortunate shareholders have to exist as best they can. South African mining scrip is in brisk demand, and prices are steadily improving. Confidence in South African mining has now been firmly established, and the results attained in that country have placed Robinson and other shares in the front rank of mining investments. There is every probability of South African gold shares becoming as popular as they were before the Transvaal collapse.

Fresh attempts are now being made to develop the auriferous deposits of French Guiana. This colony undoubtedly possesses gold in great abundance, but the difficulties of mining it are almost insuperable. The deposits are found right in the interior, to which access cannot be easily obtained. The climate, moreover, is very unhealthy, and the natives who can alone work in the mines refuse to do so. An experiment was lately made of utilising European labour, but the miners were always more or less unfit for work, and it was found necessary to import provisions from Europe. Barrels of wine sent out from France were tapped on the way by the natives, and they arrived at the gold mines nearly empty. They are such difficulties as these which have caused the collapse of the La Mana Company. Since it began working it has lost no less than £120,000. The company is now in liquidation. More satisfactory results are, however, being obtained in a neighbouring gold field by the Société du Placer Enfin, which has just been able to declare a dividend of 4fr. 50c. The amount distributed would have been much larger had the company not spent a great deal of money in the laying down of machinery upon the new property which it has lately acquired. The production of gold is increasing every year, and the prospects of the concern are satisfactory.

Private letters have just been received in Paris in which it is stated that a gold field of extraordinary richness has been discovered upon a territory lying between Dutch Guiana and Brazil. The writer, a French mining engineer, speaks in enthusiastic terms about the value of the deposits, and alludes to the field as a veritable El Dorado. No sooner was it rumoured that a discovery had been made than thousands of miners flocked into the country, and three men are reported to have found 50 kilogrammes of gold in nine days. Such a result would certainly seem to justify the contention of the writer that it is the richest gold field in the world. Other particulars about this extraordinary find of gold will be given in our next letter. The territory upon which the gold has been discovered is disputed by Dutch Guiana and Brazil, and the dispute will no doubt wax keener now that its value has been so enormously increased.

The committee appointed by the Chamber of Deputies to consider the proposed modifications to the import tariff has been dealing with the advisability of putting a duty upon imported lead. At present lead is free of any impost, and the Protectionists want to burden it with a duty of 5 francs a ton. It is urged that such a duty is necessary if the lead mining industry of France should undergo any development. Doubtless this plea would have done very well a couple of years ago, but the large majority of people interested in the industrial welfare of the country are getting tired of the present uncompromising system of protection, and the proposal to put a duty of 5 francs upon lead is meeting with strenuous opposition. The lead mining industry in France is a very unimportant one, and the interests which a duty would serve are out of all proportion to the enormous interests which it would seriously affect. The metal is used in a great many industries merely because of its low price, and if the price of lead were enhanced its employment would naturally be restricted. The production of lead in France is only 10,000 tons a year, and the amount imported is about 80,000 tons. The majority of the committee is inclined to take the view that if the necessities of trade require 90,000 tons of lead a year it would be inadvisable to restrict the supply by placing a duty upon it.

The discovery of valuable measures of coal at Dover during the preliminary works for driving a tunnel under the Channel has awakened engineers in this country to the possibility of similar deposits being found upon the French coast. It is generally conceded that the character of the Dover coal measures disposes of any theory that they are part and parcel of one gigantic basin stretching from Somerset to the Pas de Calais, but it is thought that the new coal exists in an unbroken bed under the Channel, and that Dover and Calais are its two extreme points. In such an event it is probable that a very rich deposit of coal could be reached at no great expense in the neighbourhood of Calais, and proposals are made by M. Breton, M. Marcel Bertrand, and other engineers, to carry out works with a view of ascertaining its extent. The value of such an enterprise is the more considerable as the output of coal in France is very much below the normal needs, and a vast quantity of fuel, especially for gas making and steam raising purposes, has to be imported from England. Should a section of the Dover basin be cut through the coal mined would be much superior to any now worked in France, and being in proximity to Calais, the fuel could be sent to Havre, Bordeaux, and other ports, in competition with English coal. The question is one of special interest to French coal-users at the present moment, as a great deal of opposition is being raised to the growing importation of fuel from England.

for the future. We think we see our way more clearly now, and that if no more revolutions occur in these South American Republics, there will be a general improvement. These revolutions seem to be their mode of changing their Government; when we have a general election here they seem to have a revolution there. The one which broke out on September 6 last, which appears to be at an end now, caused a great obstruction to our career, but I think the board may now look forward to smooth sailing, and we feel confident that before long you will find that the enterprise which you have embarked upon will be productive of very good results all round.

Mr. HARRIS said he did not quite understand the tenor of the Chairman's remarks with regard to the new plans. Did they provide for the completion of the works at a smaller cost than the old plans?

The CHAIRMAN said it was simply this: Some of the engineers on the spot had found that there had been a little difference in the currents, and that a good bit of filling of sand had been done away with; in fact, the board did not think so much work would be required as was originally anticipated. That, however, remained to be seen, and was a question for the future; but if it turned out to be so, they would not require so much capital to complete the works.

Colonel MACALISTER agreed with all that had been said by the Chairman and Mr. Moore as to the obligation which the company was under to the contractors, who had certainly acted most loyally, both on the present and on former occasions. He would like to know what hope there was of anything coming to the ordinary shareholders.

The CHAIRMAN replied that, being an ordinary shareholder himself, he would be glad to announce that the ordinary shareholders would soon receive a dividend, but they had first to finish the works, and he believed that when the harbour was completed there would be sufficient revenue to meet all interests, not only on the debentures, but also on the share capital. That, however, was a point which depended on a good many things, and, of course, no man could foresee what would happen. The interest, of course, was guaranteed by the Government.

The resolution was carried unanimously.

Mr. MOORE moved that Major-General G. de la Poer Beresford, one of the retiring directors, be re-elected. He had had the pleasure, he said, of sitting with Major-General Beresford for some years past, and was able to testify to the efficient manner in which that gentleman discharged his duties as Chairman. Although living at a great distance from London, the Chairman took a great interest in all that went on, and was ready to attend meetings in and out of season. He had a large stake in the company, both as a shareholder and as a debenture holder, and the proprietors could not entrust their interests to better hands. (Applause.)

Mr. GRENELL seconded the motion, which was agreed to.

On the proposition of the CHAIRMAN, seconded by Captain BELL-McTAGGART, Captain Clark-Kennedy, the other director retiring by rotation, was unanimously re-elected, and the Chairman briefly returned thanks for the compliment paid to himself and his colleague by their reappointment.

Mr. HARRIS moved the reappointment of the auditors, Messrs. Deloitte, Dever, Griffiths, and Co.

Mr. BRIGHT seconded the motion, which was agreed to.

Captain CLARK-KENNEDY, in proposing a vote of thanks to the Chairman, said the shareholders could not trust their interests in better hands. With an improved condition of things in Brazil, and the punctual payment of the guarantee by the Brazilian Government, he considered that they had a good future before them.

Mr. BRIGHT seconded the motion, which was agreed to, and the proceedings terminated.

MINING IN MEXICO.

By W. JAMES NEWALL.

NOW that so much is being said about the Western Australian gold discoveries, perhaps my observations in similar gold deposits in the northern part of Mexico may be of interest to your readers, especially if these observations convey a warning as regards the permanent character of these deposits, particularly as regards their extension in depth. About 10 years ago my attention was called to the Guadalupe Placer in the State of Chihuahua. The similarity of formation and circumstances of this place, to what I have lately read about Western Australia, almost convinces me that, although on a much smaller scale, what has happened at Guadalupe is merely an epitome of what will happen in Western Australia, and that whatever theories may be derived from the first place can be applied also to the second. I will, therefore, endeavour, as shortly as I can and in an unscientific language as possible (a), to describe the country in which the Guadalupe Placer is situated; (b) to explain its special formation and how and where the gold has been found; (c) to formulate a theory as to how the gold was deposited.

(a) For our purpose the whole of Mexico may be divided into three water-sheds—the Atlantic, the Pacific, and the Rio Grande. The one strange phenomenon seen in these water-sheds is that in any valley or plain which can be shown to belong to the Rio Grande water-shed salt is invariably found in the soil. This rule is so general that throughout the central table, land the fact of the soil of a given place being saline is a sufficient guide to determine its location as to water-sheds. Exceptions to the rule only occur in the cases of wells of volcanic origin watering a limited district. This fact shows that the receding of the sea from Mexico took place rapidly on the abrupt western and eastern water-sheds, but slowly and through a long period on the gradually sloping northern water-shed, where the waters were finally gathered into the Rio Grande valley. The nearer this river is approached from the south, the plainer are the evidences of this, and the more abundant the saline deposits and lakes, until veritable old sea bottoms are found. In many instances, land locked seas, or salt lakes, now dried up, have been left behind, some of these being found as far south as latitude 22, but many more as the country expands to the north.

(b) The Guadalupe Placer is situated on the eastern side of a range of hills, running north and south, rising from one of these sea bottoms. From the surrounding evidence, which I need not detail here, the whole district for miles around must have been submerged, and at some time during the gradual recession of the water, the range of hills must have been thrown up, forming a complete dam or barrier to the waters to the west. On the eastern side the drainage must have gradually continued to the Conchos River bed, and thence to the Rio Grande. That is, the waters to the east of the range had an outlet, whereas those to the west were completely land-locked. At some later period, whether by an earthquake, or simply by the eastern waters receding and leaving the whole pressure of the western sea to exert its power on the natural dam, there evidently occurred a breach of about two-thirds the height of the range, the water throwing down the top portions of the range, and rushing over this, thus making the first concentration of rock. As the inland sea emptied itself, the outflow would gradually diminish, until streams only would be left, working a bed for themselves in the debris. This caused successive secondary concentrations of rock, as the streams changed their beds, and it was in these that the drift gold deposits were first found, and soon practically worked out as regards pay gold. The evidences of the above course of events are plainly perceptible, although it took me a long time before the key to the problem, up to this point, was found, and the evidences acquired any significance.

As a natural consequence, my attention was then drawn to the range of hills as the source of the gold, and I found the strata were tilted up on each side of the range, and consisted of beds of slate, granite and porphyry. In the contacts between these quartz stringers are found, but these contain practically no gold. In fact, contrary to my expectation, founded on my experience of true fissure gold quartz mines in the primary formation of the central parts of Mexico, I found no gold, not even a colour, in these white quartz veins. But besides these, there are other veins, not necessarily contact ones, but running with the line of stratification, which contain considerable iron, and it was in some of these that the gold was found, by some natives who had accompanied me in my prospecting expeditions on the hills. The gold was proved to exist in the cavities of the veins, and all former finds in native rock had been of identical character, although of so little importance that nothing had come of them. The gold was found crystallised contemporaneously with calc spar, superposed on quartz, never in the grain of the quartz, as happens in the true fissure gold quartz. I have three specimens of this gold crystallised in octahedra, and saw many more taken out of the cavities with the hand, but no gold was found where the veins became compact. Blasting had to be done until the veins became loose and contained cavities, when gold was again found. That all the drift or placer gold originally came from these cavities I have no doubt, as that found near the hills was always rougher and frequently showed small pieces shaped like an arrow-head, corresponding exactly to the faces of the crystals, in shape and size. All this happened seven or eight years ago, and although great excitement was caused by the discovery, and some foreign companies began sinking shafts promiscuously, I formed my own theory, prophesied that nothing of importance would be found, and left the place. I have not heard of any rich find since, nor of large fortunes being made, even by my native friends, who used to pick out a handful of gold in an afternoon. This brings me to the theory that made me resist an attack of gold fever and come away.

(c) Stated simply, the theory deduced from preceding facts is that the gold contained in sea-water, by infiltration, got into the cavities of the veins and was there precipitated in crystals by the iron. I know this theory is likely to meet with many adverse criticisms, but given the combination of circumstances, I do not see what other reasonable conclusion can be come to, and the chain of evidence seems complete. The only grave objection might be the infinitesimal amount of gold chloride found in sea-water, but in such land-locked seas as I have described, evaporated until they have dried up, concentration was enormous, and the percentage of gold chloride might well be sufficient to be precipitated by iron, especially when the process took centuries to effect. Again, in a tideless sea, devoid practically of motion and life, the gold chloride would by gravity be found at the bottom, making its way in solution to the cavities in the veins, and as soon as deposited, even in minute particles, replaced by the chemical attraction of the iron, by further minute supplies. If this slow process was extended through thousands of years, I do not see any unreasonableness in the idea. Again, the significance of the juxtaposition of the calc spar crystal to the gold ones is very great as corroborative evidence. Everybody knows how and whence the first were formed, and it seems absurd to deny the same origin to the second. Besides, gold could not be deposited in crystals, except from an aqueous solution, and such a solution could not find its way into the cavities of recently tilted strata, except by infiltration from the surface, and if this surface was covered by a sea, then sea-water with gold in solution must have infiltrated. The theory seemed to me incontestable as regards the Guadalupe district, and some years later, when travelling on the American side of the Rio Grande, I perceived the same formation and analogy, especially in and near the Yuma Desert. I immediately ventured on the opinion that gold would be found there, and heard that this was the case, although only in insignificant quantity. Now again, years afterwards, I read of arid desert plains, with ranges of hills, brackish water and salt lakes, quartz veins containing iron, drift gold, and large pieces taken from the surface or easily dug out from the veins.

The analogy seems complete, only on a much larger scale, and therefore not so easily studied; it, therefore, seems to me that the same theory can be applied to Western Australia, and, perhaps, to many of the gold fields elsewhere. If not, then all I can say is that strange as coincidences always are, this is about the strangest coincidence of all. Apart from the scientific interest of the subject, the practical bearings are important, for if the theory is correct, we ought to be prepared for disappointment, when gold is not found in depth beyond the point to which infiltration can reach. As further corroboration of the above, it would be interesting to know whether the Western Australian gold has been found crystallised and together with calc spar; and, further, whether any of it is found ingrained in the quartz or only superposed with the calc spar. Of course, if these points corroborate my theory, large quantities of gold may be found on or near the surface, but in this case we ought not to count on a permanent supply of the precious metal from this source, and mining companies should first take the precaution of testing the ridges by boring, before incurring heavy outlay in machinery and shaft sinking. The practical moral of all this is, when you find gold in a vein containing iron, and you find salt in the neighbourhood—beware. "Verb. sap. sat. est."

THE GLUT OF SILVER.—In the House of Commons, on Thursday, Sir Frederick Dixon-Hartland asked the Chancellor of the Exchequer whether he was aware of the great detriment to trade caused by the present glut of silver, which was so great that the Bank of England declined to receive it except at a charge of ½ per cent., whether the mint was now issuing any silver except at the request of the Bank of England and other bankers, or whether they were still paying the dockyards or any other public establishments with silver from the mint; and, if so, how much silver was put into circulation each week, and whether the £1,133,154 coined during the year ending March 31, 1894, was put into circulation, or how much of it, and by what means.—Sir William Harcourt stated that, owing to the large amount of silver coin which was now being received, the Bank of England were, in accordance with the usual practice, making a charge of 5s. per £100 for large parcels of silver. The answer to the second part of the question was in the negative. Silver coin was never issued by the Mint for the use of the dockyards or other public establishments, excepting through the usual channels of the Bank of England or Ireland, or the Scotch Bank. The value of the silver coin issued by the Mint during the financial year was £1,008,000, of which £208,000 was supplied on the direct application of Colonial Governments, and the balance of £800,000 was supplied to the United Kingdom through the usual channels of distribution. Against this must be set worn silver withdrawn from circulation to the amount of £369,000.

A STREAK of ore 4 inches in width was cut through from the lateral drift from the intermediate tunnel in the upper workings of the Sierra Nevada, on Cedar Hill. This ore assays from £4 to £6 per ton in gold. The ground now being explored is in a region which has produced a large amount of gold bullion from the surface workings, and a far more important development is probable.

LATEST FROM THE MINES.

CABLEGRAMS AND TELEGRAMS.

LADDIN'S LAMP.—The following cablegram has been received from the mine:—"In consequence of having to erect new poppet legs the shaft has been temporarily closed and the mill shut down for 12 days for repairs to the engine. Since last cablegram we have crushed 147 tons of ore, yielding 137 ounces of gold. The new Ball mill will be started on Wednesday."

AFRICAN CONSOLIDATED.—A cablegram has been received from the manager sent out to take charge of the company's coal property in South Africa to the effect that he has arrived at Middleburg and taken possession of the company's works in that district, with which he expresses himself well satisfied. Advices have also been received that the seam of coal recently reported to have been struck appears to be of considerable thickness, having been cut into 6 feet without "being through."

ASIA MINOR.—Production to May 25: Lidjessy Mines: Crude ore crushed 1422, yielding 105½ tons rich silver lead. Gemin Bel Mines: 45 tons rich silver lead.

AUSTRALIAN BROKEN HILL CONSOLS.—The following telegram has been received from the general manager, dated Broken Hill, June 9th:—"1 ton 4 cwt., 1350 ounces of silver. Prospects are undoubtedly good."

BARRETT.—Gold return for May, 225 ounces. Cyanide working interfered with and delayed by erection of the additional plant, which will be completed about the 15th June.

BRILLIANT BLOCK.—The directors have received the following cablegram from Charters Towers:—"Have crushed during the fortnight 746 tons of quartz for 826 ounces of gold. The profit on the run is £1300." The approximate value of the above return is £2850.

BLOCK B. LANGLAAGTE ESTATE.—Production for May, by cable:—"Mill: Ore crushed, 6478 tons of 2000 lbs.; gold returned, 1614 ounces.—Tailings, cyanide process: Tons treated, 6880 tons of 2000 lbs.; gold recovered, 1307 ounces.—Concentrates, cyanide process: Tons treated, 96 tons of 2000 lbs.; gold recovered, 184 ounces. Total gold recovered, 3105 ounces."

BUFFELSDOORN ESTATE AND GOLD.—Last month's crushing yielded 5006 ounces from 10,000 tons crushed and cyanide treated 8000 tons. Declaration delayed by accident to smelting works.

COLOMBIAN HYDRAULIC.—The directors have received the following cablegram of the result of run No. 194:—"We have cleaned up after a run of 51 days, during which time we have washed 860 hours. The gross returns are £2000. The net profit is £1050."

CROWN REEF.—Results for May, received by cablegram from Johannesburg June 15: "Number of days working 120 stamp mill, 29 days 13 hours; crushed by 120 stamp mill, 17,773 tons; accumulated tailings and slimes treated, 9215 tons; yield in smelted gold from 120 stamp mill, 6485 ounces; yield in smelted gold from cyanide work, 1979 ounces; yield in smelted gold from old cyanide works, 1544 ounces, equal to 10,008 ounces. Profit from 120 stamp mill and cyanide works, £5671; profit from accumulated tailings and slimes, £1533; total profit for May, £7204."

CROWN REEF.—Results for May: Yield in smelted gold from 120 stamp mill 6485 ounces. Yield in smelted gold from 120 stamp cyanide works treating tailings and concentrates produced by the mill 1979 ounces. Yield in smelted gold from old cyanide works treating accumulated stock of tailings and slimes 1544 ounces. Total, 10,008 ounces.

EAST RAND PROPRIETARY.—The Anglo-French Exploration Company (Limited), as agents for the East Rand Proprietary Mines (Limited), have received a further cable from Johannesburg, in reference to the Ginsberg reef struck on the Ramsay property, from which it appears that the total width of it is 40 inches. The footwall section of the reef is 17 inches in width, assays 2.0 dwts. per ton, and the entire 40 inches of reef assays 12 dwts. per ton.

EL CALLAO.—Messrs. Baring Brothers and Co. (Limited) have received the following telegram from the president of the El Callao Gold Mining Company:—"576-600 ounces of gold produced by the El Callao Mine for the past fortnight, and 1236-1250 ounces of gold by the Colombia Mine for same period."

ELKHORN.—"Bullion produced in the mill for the week ending May 9, 10,000 ounces."

EXPLORATION COMPANY (Alaska Mexican Gold Mining Company.)—Cablegram from Alaska reports the clean-up for the month of May as follows:—"Period since last return 31 days; bullion shipped, \$15,951; ore milled, 6250 tons; sulphurets treated, 100 tons; of bullion there came from sulphurets, \$3181; working expenses for period, \$12,472."

FERREIRA.—Copy cablegram received from Johannesburg:—"Results for May: Tons crushed, 3900; bar gold extracted, 4184 ounces; concentrates caught, 120 tons; assay value of concentrates, 8 ounces 10 dwts. fine gold per ton.—Cyanide works: Bullion produced from tailings, 1065 ounces."

GELDENHUIS ESTATE AND GOLD.—A cablegram has been received from the head office at Johannesburg, stating the following results for last month (May): "Crushed, 9783 tons; obtained, 3354 ounces of gold; profit for month, £760."

GEORGE AND MAY.—Crushing for May, 926 ounces from 3089 tons; 397 ounces from new tailings; total, 1323 ounces.

GINSBERG.—"Crushed 1016 tons with 10 stamps, produced 713 ounces of gold."

GLENCAIRN MAIN REEF.—"Production for May 4753 ounces. Profits £3200. 50 stamps, 29 days."

GOLD FIELDS OF MASHONALAND.—The following cablegram has been received from the manager of this company:—"Will commence crushing July. Have struck a large ore body in the main level. Width not yet determined. I consider the prospects most favourable."

GUADALCAZAR QUICKSILVER.—The quantity of quicksilver drawn off during the four weeks ending May 31, as cabled from the mines, amounts to 8600 lbs.

HARQUAHALA.—The following is the cabled estimated return for the month of May:—"Crushed during the month, 2950 tons; estimated gross value of gold produced, \$32,500; surplus on bullion shipped for April, \$1050; miscellaneous revenue, \$500—\$34,050; estimated total expenses, \$12,000; estimated profit for the month, \$22,050 (at \$4.90 to £1 sterling, £4500). The directors understand that rumours are being circulated questioning the title under which the company is working the property. The directors desire to say that there is no foundation for these rumours, and that there is no litigation affecting the company's position."

JAY HAWK AND LONE PINE.—The directors have received the following telegram from the manager, viz:—"Estimated mill return for last week, 7000 ounces."

JUMPERS.—A cablegram has been received from the head office at Johannesburg, stating the following results for last month (May):—"Crushed 9558 tons, obtained 4135 ounces of gold, and concentrates equal to 595 ounces of gold. Total, 4730 ounces of gold. Profit, £5500."

KABOONGA.—The following cablegram has been received from the manager at the mine:—"Bore in top level south-east drive through bed-rock 20 feet in sandy clay showing free gold wash ahead. Second borings in the face of top level south-east drive same as last reported. Level satisfactory. Am putting in drive as quickly as it is possible. Water easy."

LANGLAAGTE ESTATE AND GOLD.—Production for May, by cable:—"Mill: stamps running, 160; ore crushed 22,537 tons of 2000 lbs.; gold returned, 7611 ounces.—Tailings, cyanide process: tons treated, 23,320 tons of 2000 lbs.; gold recovered, 3610 ounces.—Concentrates, cyanide process: Tons treated, 360 tons of 2000 lbs.; gold recovered, 1184 ounces. Total gold recovered, 12,405 ounces."

LAS CABESSES MANGANESE.—Production for the week ending June 9 (six working days) 372 tons, or a daily average of 62 tons. The week's operations have consisted principally of exploratory work to the north and west at the 52 metre level; south and east at the 45 metre level; and to the east at the 39 metre level; all of which laid open first class mineral. Explorations at Crabions continues to give good mineral.

MAIN REEF.—During May crushed 3895 tons, obtained 1010 ounces of gold, also 560 ounces from tailings. Total, 1570 ounces.

METROPOLITAN GOLD.—During May crushed 2535 tons, obtained 900 ounces of gold.

MILL'S DAY DAWN UNITED.—Return for the month ending June 8. Tons crushed, 3680; ounces gold obtained, 4107; approximate value, £14,150; dividend 6d. per share, payable June 25.

MOODIES' GOLD AND EXPLORATION.—The following are the returns from the company's property for month of May:—"Claims rented or leased 251. Number of tons crushed by claimholder 560; yield of gold from ditto 461 ounces."

MOSMAN.—The directors have received the following cablegram from the manager at Charters Towers:—"Since last return dated 21st May, have crushed 472 tons of stone from the Wyndham shaft for 307 ounces of gold. Will ship 438 ounces of bullion by next mail steamer. The approximate value of this return is £1050."

MOUNT LEYSHON.—The Mount Leyshon (Limited) have received the following cablegram, dated 12th inst., from their manager at Charters Towers, giving the fortnightly crushing:—"700 tons crushed 216 ounces gold. 40 stamps mill ran six days. Profit £91. Mill stopped for boiler to be cleaned and repaired."

MOUNT LYELL.—The London committee has received the following cablegram, dated 13th inst. from the Melbourne board:—"Tasmanian Government rejected Debutentes Guarantee Bill upon grounds that the contingent liability cannot be undertaken by colony."

MOUNT MORGAN (Queensland).—The following assays are from the Linda crosscut:—April 16, 6 ounces 17 dwts. 4 grains per ton; 17, 5 ounces 7 dwts. 19 grains per ton; 19, 2 ounces 17 dwts. 4 grains per ton; 20, 16 dwts. 8 grains per ton; 21, 1 ounce 4 dwts. 12 grains per ton; 24, 13 dwts. 1 grain per ton; 24, 10 ounces 12 dwts. 8 grains per ton; 25, 13 dwts. 1 grain per ton; 26, 4 dwts. 21 grains per ton.

NEW AURORA WEST.—Have cut main reef leader in the main shaft No. 4 level, assaying 2 ounces 2 dwts. per ton.

NEW DOURO.—Month of May ore crushed 147 tons. Gold recovered 123 ounces.

NERBUDDA COAL AND IRON.—The sales of coal for the month of April amount to 1652 tons.

NEW KLIENFONTEIN.—Result of last month's crushing yielded 2032 ounces of gold.

NEW PRIMROSE.—"Production for May 7701 ounces. Profit £11,552. 100 stamps, 20 day."

NEW QUEEN.—The directors have received the following cablegram, dated Charters Towers, June 9, giving result of crushing for past fortnight:—"No. 1 formation 245 tons yielding 225 ounces gold. Cannot account for poor return. We think returns likely to improve. Started crushing No. 4 formation June 4. £270 received for public crushings during fortnight. Shipped per s.s. Duke of Buckingham 550 ounces."

NEW RIETVONTEIN.—Crushed during May 2700 tons, obtained 884 ounces of gold; cyanide works treated 2204 tons of tailings, yielding 412 ounces; from concentrates, 47 ounces; total, 1343 ounces.

QUEEN CROSS REEF.—The London office has received the following cablegram from the head office in Charters Towers:—"Call has been made of 2d. per share, payable 27th June, 1894."

RANDFONTEIN ESTATES.—Production for May, by cable:—"Mill. Ore crushed, 8357 tons of 2000 lbs.; gold returned, 3131 ounces.—Tailings, cyanide process. Tons treated, 4550 tons of 2000 lbs.; gold recovered, 624 ounces. Total gold recovered, 3755 ounces."

ROBINSON.—Production for May, by cable:—"Mill. 70 stamps at work; 9246 tons of ore crushed; yield in smelted gold, 9109 ounces; from concentrates, by chlorination, 1058 ounces; from tailings, cyanide process, 1650 ounces; from own ore, 11,817 ounces; from concentrates bought by chlorination, 2544 ounces; total gold recovered, 14,361 ounces; profit for month, £28,750."

SILVER KING.—The following cable has been received from Mr. Edwards, manager at the company's mines:—"Silver mill working 29 days and nights during May. Crushed 2400 tons of ore. Produced 26,000 ounces silver. Shipped 23,000 ounces. Expenses, \$10,800."

TRANSVAAL COAL TRUST.—The following is a copy of a cable which has been received from the Transvaal Coal Trust Company (Limited), at Johannesburg, with reference to the operations of that company for May:—"Output 25,000 tons. Profit, £4300."

VAN RYN ESTATE GOLD.—Net profit for month, £916.

VICTORY (Charters Towers).—The London office has received the following cablegram from the head office in Sydney:—"Crushing for fortnight from No. 1 shaft, 39 tons for 28 ounces; ditto No. 2 shaft, 410 tons for 390 ounces; total, 449 tons for 418 ounces of gold."

VILLAGE MAIN REEF.—The following is the result of last month's crushing:—"Mill ran 24 days, crushed 3100 tons, which yielded 2100 ounces free gold, and 62 tons concentrates, assaying 8 ounces, tailings assayed 5 dwts."

WAIHI.—Bullion return for 28 days ending June 2, £6300 from 2000 tons.

WEMMER GOLD.—The directors are in receipt of cablegram from Johannesburg, advising work done during May: "4506 tons crushed, yielding 2907 ounces of gold. 40 stamps working 30 days."

WENTWORTH EXTENSION.—Report dated May 5: Main shaft east crosscut is in 102 feet cutting through diorite, showing favourable calcite. West crosscut 47 feet; diorite continuing very hard.—Cable dated June 11. Payable alluvial 3 feet in width; prospects are encouraging.

WOLHUTER.—Crushing for May—1715 ounces from 3340 tons, 820 ounces from tailings.

THE DERBYSHIRE CARBONIFEROUS DOLERITES AND TUFFS*

THEIR MICROSCOPICAL STRUCTURE.

By H. H. ARNOLD-BEMROSE, Esq., M.A., F.G.S.

THE paper dealt with the petrography of the toadstones or igneous rocks of Derbyshire. Brief reference was made to the work of previous petrographers, the age of the rocks, and the question as to the number of beds. The outcrops mapped by the Geological Survey, and several additional ones, were examined, and the results given in a table for the purpose of the paper and for future reference. The toadstone is divided into massive rocks or lavas, and fragmental rocks or tuffs. The former consists of olivine-dolerite, either with granular or with ophitic augite, and olivine-basalt. The rock is very often fresh, but in some cases is altered to a diabase. The principal constituent minerals were described, as well as a pseudomorph of olivine, optically like biotite, and somewhat like Iddingsite, but differing from it chemically.

The latter portion of the paper dealt with the tuffs, which are much more extensive than has been hitherto supposed. Specimens were described, taken from 13 outcrops.

Discussion.

Sir ARCHIBALD GEIKIE, in complimenting the author on the completion of a laborious and valuable piece of work, alluded to some of the striking points of resemblance between the microscopical structures of the Derbyshire volcanic rocks and those of the carboniferous series in Central Scotland. It appeared to him, however, that the petrography of the region would not be adequately understood until the history of the volcanic phenomena had been investigated in the field with far more minuteness than had yet been attempted. Having recently for the first time visited the Toadstone area, he was able fully to confirm the suspicion which he had long entertained, that the story of these volcanic rocks was far more varied and interesting than had been supposed. He had often wondered why none of the vents of discharge had been detected in a region so deeply trenched with valleys as Derbyshire. But in the course of a few days he succeeded in discovering at least six of these vents. They are filled with coarse unstratified agglomerate, and are sometimes traversed by dykes or veins of dolerite or basalt. As admirable examples, he described two such vents at Grangemill, west of Matlock Bath, where they rise through the limestones and are flanked with a band of finely-bedded tuff, which may mark the material ejected from them. Vents are found from the extreme north to the extreme south of the limestone area, and even traverse the Yoredale rocks. While many of the toadstones are true lava streams which, either with or without fragmental accompaniments, were poured out over the floor of the carboniferous limestone sea, he felt tolerably certain that some of them are intrusive sills. In internal structure they present a close resemblance to the usual type of carboniferous sill in the basin of the Firth of Forth. At one locality near Peak Forest he found that the limestone overlying one of these sheets is metamorphosed near the contact. Again, in Tideswell Dale, as was well known, a band of clay underlying another similar rock has been made columnar to a depth of 9 feet. In his rapid traverses of the ground, the speaker had the great advantage of the intimate local knowledge of the author of the paper, who had kindly guided him to the sections which he specially selected as most likely to throw light on the volcanic history of the region. He had urged Mr. Bemrose to take up with the same patient and exhaustive industry the field relations of the rocks. He felt that it would probably be feasible to establish two distinct petrographic types among the dolerites or diabases, one characteristic of the contemporaneous flows, the other of the sills; and that not improbably some distinction might be made out between the fragmental material which consolidated in the vents, and that which was discharged over the sea bottom. There were probably many distinct volcanic platforms in the district, but to determine their succession accurately it would be necessary to work out in detail the stratigraphy of the carboniferous limestone. Obviously an exceedingly interesting chapter in the volcanic history of this country was recorded in Derbyshire, and he trusted that the author, living as he did in the county, would undertake to decipher it.

Mr. W. W. WATTS congratulated the author both on the work he had done and on the way in which he had presented it to the society. He thought that the perfect ophitic structure shown in some of the sections would hardly be developed in a lava stream, but only in a sill. With regard to the identification of Iddingsite, he had found at least two varieties of brown pseudomorphs of olivine in similar rocks, some of which were uniaxial, while others were biaxial.

Dr. JOHNSTON-LAVIS complimented the author on working out so thoroughly not only the massive rocks, but also the tuffs, which were frequently neglected. He attributed the absence of olivine to either its not having individualised or to the facility with which it cracks and breaks up by a change of temperature, so that the fine fragments might be easily overlooked in old altered rocks like these. He would like to know whether the calcareo-igneous breccia was near the bottom of the deposits, as it would most likely occur at the first explosive disruption at the initiation of another cone. At any rate, he should expect it to be associated with pumice, and he thought one specimen shown by the author was undoubtedly an old altered pumice.

The AUTHOR thanked the speakers for the manner in which they had received the paper. The interesting way in which Sir Archibald Geikie had dealt with the subject would certainly induce him to continue the work. In answer to Mr. Watts, the Peak Forest rock referred to by Sir A. Geikie is an ophitic dolerite. In reply to Dr. Johnston-Lavis, in one case at least—viz., in Embsay, the tuff is more calcareous at the bottom of the exposed part of the deposit. He did not think that the pseudomorph of olivine was a surrounding of olivine by mica, as the alteration proceeded along the cracks until the whole of the olivine was replaced.

* Summary of a Paper contributed to the Geological Society of London.

The British Consul at Cagliari shows that the fall in the price of lead ore is seriously affecting the trade in that province and reducing work in the mines. Last year 1300 miners and labourers were dismissed. This reduction in the output of ore must make it scarcer, and in time should bring about an advance in price.

THE ALLOTROPISM OF GOLD.*

By HENRY LOUIS.

It can scarcely be considered a matter of doubt, in the present state of our knowledge, that the existence of, at any rate, two well-marked allotropic modifications of gold can be recognised—namely (a), the ordinary, yellow variety, and (b) the red, brown or purple, non-lustrous, amorphous variety.

There are, indeed, not wanting indications that still other allotropic forms may be capable of existing. It is, for instance, possible that the green colours of gold obtained under certain conditions, or that the black powder produced when the alloy of gold with potassium is decomposed by water, may represent further allotropic modifications, although this proposition is open to doubt. It can scarcely be pretended that the two first-named varieties have been absolutely isolated, yet it is, perhaps, quite permissible to speak of the ordinary, and the amorphous modifications as having a proved existence.

Ordinary gold is sometimes found crystallised in nature, although never in a state of purity. When gold is melted and cooled slowly, its surface shows crystalline markings, and the fact that it is capable of crystallising in the cubic system may be looked upon as established. When gold is produced by precipitation, the form which it assumes is dependent on the conditions of precipitation. G. Rose says that gold precipitated by ferrous sulphate from very dilute solutions is so finely divided that no regular form can be recognised, but in more concentrated solutions the precipitate consists of minute cubes. When oxalic acid is used as a precipitant, the gold is coarser and forms octahedral crystals. J. Thomsen has obtained similar results. Working with dilute and with highly dilute solutions, I have myself been quite unable to recognise any crystalline structure, even under the highest powers of the microscope; nor did there seem to be any tendency of the particles to group themselves into arborescent forms, such as might indicate incipient crystallisation. Precipitates from solutions containing between 0.0001 and 10 per cent. of gold gave no indications of crystallisation, even when magnified 800 diameters.

Thomsen (*loc. cit.*) has also pointed out that the physical characters of precipitated gold differ according as it has been precipitated from solutions of its chloride or its bromide. He also found that these different forms possessed different degrees of thermic energy, and hence deduced a strong argument in favour of their being allotropic varieties.

The specific gravities of various forms of gold differ considerably. G. Rose (*loc. cit.*) found that fused gold had a density of 19.3336 after it had been compressed in a coining press, it being a little lower before this mechanical treatment. The density of precipitated gold thrown down by ferrous sulphate he found to vary from 19.5419 to 20.6882, the highest figures being obtained from extremely dilute solutions, the precipitate from which showed no trace of crystalline form; when precipitated by oxalic acid its specific gravity was 19.4791. When such amorphous gold was struck in the coining press, its density became reduced to 18.0194. I have found that the density of gold left on dissolving out various metals alloyed with it, when the gold remains behind in a brown, amorphous, lustreless condition, varies between 20.3 and 19.5.

It is only fair to notice that Rose did not ascribe the differences in the densities of the different forms of gold to allotropism, but has suggested another explanation, which is hardly, to my mind, a sufficient one. It is probably safe to assume that there are two modifications of gold—one a light one, of density 19.3 or thereabouts, and the other a heavy one, the density of which approaches 20.7—while various combinations of these extreme forms are capable of occurring.

In this connection the curious divergencies in the densities of specimens of native gold from different localities, but of about the same composition, may also be referred to; allotropism may, at any rate, be suggested as a possible explanation of them. There are thus sufficiently well-marked differences in physical characteristics to support the hypothesis of allotropism.

As regards chemical properties, Thomsen has also pointed out that when amorphous, pulverulent gold is acted on by chlorine or bromine, auric compounds (AuCl_3 or AuBr_3) are produced; whereas, these same substances produce auric compounds (AuCl_3 or AuBr_3) with ordinary gold.

I found another point of difference, of far greater practical importance, in the behaviour of these modifications towards mercury. Ordinary gold, of course, amalgamates readily, as is well known. I have found that gold precipitated from highly dilute solutions by ferrous sulphate is not attacked at all by mercury when freshly precipitated, and only slightly after drying on an air bath. Near the boiling point of mercury partial amalgamation took place, but it was by no means complete. Mercury containing a large amount of sodium amalgam was equally without effect on the dry gold, although it readily and completely amalgamated it when moist. In these observations I seem to have been partially anticipated by Ludwig Knaff, who, however, appeared to attach little importance to his observations. In a brief note on the preparation of certain amalgams of gold, he says:—

Gold precipitated by green vitriol or mercurous nitrate is not suitable for amalgamation, as it is too finely divided and always floats on the surface of the mercury† as a black powder, whether heated mercury be poured upon heated gold or vice versa. I examined this floating black powder, and found it to contain gold and mercury. . . . Gold precipitated either by means of arsenious acid, or by boiling a solution of the chloride in amylic alcohol, when it separates out in small, lustrous, octahedra, is best suited for amalgamation.

It may also be added that the purple of Cassius, which probably contains an allotropic modification of gold, is not attacked by mercury. The black pulverulent form of gold resulting from the decomposition of the potassium-gold alloy likewise resists amalgamation. On the other hand, the coherent gold sponge left on dissolving out the alloying metal from the gold alloy amalgamates pretty readily, as does also the coherent pale brown powder produced by precipitating with sulphurous acid a strong solution of auric chloride.

All forms of gold are converted into the ordinary yellow, lustrous variety by the action of heat. A very high temperature is not required, but the exact point has not yet been determined; it is certainly well above 200°C ., but probably under 600°C . Powerful mechanical action, such as percussion, friction, or compression, has the same effect.

I do not pretend that the above data form anything like a complete chain of evidence, proving irrefragably the allotropism of gold, or that our knowledge of this subject is precise or definite; yet I venture to think that the facts do warrant us in looking upon the following deductions as probably correct:—

1. Gold is capable of existing in allotropic modifications.
2. One of these modifications is capable of amalgamation only with great difficulty, if at all.
3. This modification is capable of being produced and of sub-

sisting under conditions that may reasonably be supposed to exist in nature when gold is deposited in reefs.

Whatever may have been the nature of the solution by means of which gold has been introduced into the deposits in which we find it, whether as a soluble haloid salt, as is generally supposed, or as an alkaline aurate, as I venture to suggest, it must have been precipitated from such solution in various ways and under varying conditions. We have but few indications of the cause of this precipitation, but it is reasonable to conjecture that such reagents as ferrous sulphate or sulphurous acid, both resulting, perhaps, from the slow oxidation of iron pyrites, may have found their way in solution into the fissures within which the gold solution was circulating, and may thus have caused the deposition of gold within the reefs. Now, if the gold, thus deposited from highly dilute solutions, happened never to be exposed to a particularly high temperature, or to violent mechanical action, the conditions would be favourable to the production of that allotropic modification of gold which is indifferent to the action of mercury. In other words, under the above conditions, an auriferous deposit will have been produced in which a greater or smaller part, or perhaps even the whole, of the gold is what gold miners term "rusty." I have little doubt that the "rustiness" of gold is in different cases due to widely different causes—that, in fact, there is more than one kind of "rustiness"; but I venture to think, also, that there is sufficient evidence to warrant us in classing allotropism amongst such causes of "rustiness." If this is correct, I need hardly point out either the great practical value or the application of this deduction. The gold which is thus allotropically indifferent to mercury is in a condition in which it is readily attacked by such reagents as chlorine and potassic cyanide. I have pointed out long ago that the gold of the Witwatersrand deposits of the Transvaal was probably deposited *in situ* under some such conditions as I have sketched above, and it is now notorious that a large proportion of the gold in them is not attacked by mercury, but readily by potassic cyanide solution. Again, in some cases it may be economically feasible to convert the non-amalgamable modification of gold into the common amalgamable variety by heating the ore to a moderate temperature, or the same end may be attained by mechanical means. In any case, the only really sound method of preventing losses of gold in the process of gold extraction is that of ascertaining, in the first place, the ultimate causes of such loss; and I venture to hope that it will be found that amongst such causes, the one here treated of—namely, allotropism of gold—will be found worthy of more consideration than it has hitherto received from scientific gold miners.

MINING NOTES.
HOME, COLONIAL, AND FOREIGN.

TELEGRAPHIC advices received from Johannesburg by the Union Steamship Company (Limited) state that the gold crushings on the Witwatersrand fields for the month of May were 169,773 ounces. One or more important contributors to the output has not been in full work owing to mining necessities. The following table, taken from the circular issued by the Mining Department of the South African Trust and Finance Company (Limited), gives the crushings to date.

	1889	1890	1891	1892	1893	1894
	Ozs. dwt.	Ozs. dwt.	Ozs. dwt.	Ozs. dwt.	Ozs. dwt.	Ozs. dwt.
January...	25,505 12	35,002 15	53,205 8	84,560 8	108,374 0	149,814 0
February...	22,456 18	38,887 5	50,079 2	86,649 8	93,252 0	151,870 0
March...	27,819 0	37,780 2	52,949 1	92,444 11	111,474 0	165,372 0
April...	27,028 11	38,818 18	55,371 18	85,582 6	122,953 0	168,748 0
May...	35,028 7	38,838 5½	54,673 1	99,436 6	115,911 0	169,773 0
June...	30,877 13	37,419 10	56,881 1	103,252 3	122,507 0	—
July...	31,091 2	39,458 14	54,924 10	110,279 1	126,169 0	—
August...	30,519 14	42,363 11	59,070 4	102,322 3	136,069 0	—
September...	34,143 10	45,485 19	65,601 15½	107,851 13	129,985 0	—
October...	32,214 6	45,243 17	72,793 8	112,167 0	138,599 0	—
November...	33,721 16	46,782 18	73,393 15	106,794 15	138,640 0	—
December...	39,050 11	50,352 5	80,312 11	117,748 17	146,357 0	—
	269,557 5	494,817 0½	729,237 12½	1,210,968 16	1,478,473 0	2,005,574 0

The amount of gold produced in the year 1887 was 23,145 ounces 8 dwts. Complete monthly totals were not recorded in that year.

The Waukaranga correspondent of the *Adelaide Observer* says:—"Some time which was taken out of Lovely Gully on April 10 (about half a dish) gave the startling result of 3 dwts. 8 grains, being equal to 40 ounces to the ton, without the stone being crushed. This lode is composed of brown gossan and decomposed iron, and every shot that is fired shows an improvement. About half a bucket was washed without being crushed on April 11, and yielded 6 dwts. of coarse, rugged gold—some pieces 1 dwt., and the remainder in smaller quantities. This should have been called Golden Gully instead of Lovely Gully, for gold is not only obtained in the Syndicate line of reef, the strike of which is north-east and south-west, but it is also obtained in several east and west lodes, which are traceable for miles in length. Altogether I consider that this will be one of the largest reefing fields that has been opened up in South Australia. It requires capital to prove its value. From what I can hear this place seems scarcely to be known to the public. At the Adelaide School of Mines samples of the ore containing gold are on view."

Mr. W. J. MOORE, mining expert, has been interviewed by a correspondent of the *Adelaide Observer* in regard to the rich find of gold near Carrieton. The claim is known as Shepherd's. There is a shaft sunk about 35 feet. On examining the lode he finds that the work was all done between the walls, indicating the lode to be large enough for a man to work without breaking them. He states that the lode shows about 4 feet wide, and is of a fine quartz reef, similar to those in Stawell and Maldon in Victoria. Right through the reef from top to bottom gold can be seen with the naked eye, and the dirt and rubble taken from the reef show nice fine gold when washed. A sample of this quartz was tested where no gold was visible, and returned 7 dwts. 11 grains to the ton. Mr. Moore has also found a well defined reef carrying gold near the native well, Uroonda, about 17 miles north of Carrieton. The lode in this reef is 3 feet wide, and enlarges as it goes down. He says this is similar to the reef near Carrieton, and is of the opinion that it is part of the same gold-bearing country. A sample of the Uroonda stone has been tested and shows 9 dwts. to the ton. Mr. Moore also states that there is a strip of gold-bearing country passing about two miles west of Carrieton and in a northern direction, and that the reefs are equal in appearance to the best quartz reefs in the eastern districts of the colony.

The following is a list of the 12 leading producers for April, calculated upon the value of the gold yield: Robinson (own ore only), £44,881; Langlaagte Estate, £42,660; Cronus, £39,692; New Primrose, £23,720; Jumpers, £18,321; Durban Roadside, £18,058; Ferreira, £17,680; Wemmer, £13,579; Simmer and Jack, £13,447; Langlaagte Royal, £13,172; New Heriot, £13,168; and Glencairn, £12,961.

The new find near Bundawadra is practically a lease worked many months ago by Mr. Anstey in the earlier days of this field, says the *Murchison Miner*. The discovery is due to the energy of a prospector named M. Kennedy, who has been during the past three weeks exploiting that neighbourhood. After the discovery of a large specimen weighing about 30 lbs., and from which about 24 ounces of gold have been dollied, the floaters were traced to their reputed origin, which is a reef lying about 50 yards behind where the specimen was picked up, and which turns out to be the same lode as that worked by Anstey. Now that ample demonstration has been given that a shoot of gold exists in the lode from which the rich floaters have been emitted, it is to be hoped that the present owners will open out the lode and prospect energetically.

PLACER mining will engage the attention of a larger number of prospectors this year than ever before, says the *Daily Inter-Mountain*, Montana. The water supply for the season will be adequate for all purposes on account of the heavy snowfall of the past winter, and few districts where colours exist will be neglected. There is said to be good diggings over in granite country west of Philipsburg, but as the season for work is short and the distance to bedrock great, but little work has been done there. A number of Butte men are now outfitting for a trip there when the snow goes off the mountains, and they will no doubt thoroughly test that section for gold deposits.

A CORRESPONDENT of the *Oban Telegraph* says:—"There is plenty of gold over both Tierra del Fuego and Patagonia, but not in bulk or in beds, only washable gold. It was told me as a secret that quartz gold had just been found near Laguna Blanca, about 120 miles away from the colony. A Frenchman and two friends looking for 'camp' found the gold accidentally, and stuff visible to the naked eye. They worked quietly all summer before being discovered. Then the word went round—it reached me, and unfortunately the artist cook of ours, Senor Torres, who, kicking over his pots and pans, girded up his loins and 'vamoosed.'"

THE "blacksands" of the Pacific Coast occur from Takutak Bay, in Alaska, to Santa Cruz Bay, California, and contain more than enough gold in flakes and dust to pay the American National Debt, could it be extracted, says the *Globe*. Miners work the sands with sluice and pan, but only save 25 per cent. of the gold. Platinum and metals of the same class are also found in the sand. So is magnetic iron. Moreover, there are ancient beaches back from the present ones, which also contain this auriferous deposit.

SUPERINTENDENT KLEPETKO, of the Boston and Montana smelter at Great Falls, Montana, makes a report showing that the total smelting for 18 months has been equivalent to 211,958 tons of ore, and the production of 33,398,915 lbs. of copper, as follows:—Matte shipments, 4,781,440 lbs.; pig copper shipments, 10,557,340 lbs.; ingot and cake shipments, 7,246,834 lbs.; electrolytic cathode shipments, 8,375,675 lbs.; sundry small shipments not reported, 1194 lbs.; on hand January 1, 1894, matte, pig copper, refined copper, anodes, solutions, &c., 2,358,714 lbs.; furnace refinery loss in refining, 19,825,558 lbs.; ingot and anodes, 77,718 lbs.; total, 33,398,915 lbs. The capacity of the electrolytic refinery has been gradually worked up in capacity until it is now producing monthly 1,600,000 lbs.

MINING ROYALTIES IN WALES.—IMPORTANT DISCOVERY.—A Cardiff correspondent states that a question has been raised in South Wales which involves the ownership of minerals and royalties throughout almost the entire extent of the steam coal fields. In the course of investigations conducted in the Record Office on behalf of the Cardiff Corporation, the original grant made by Edward VI. to Sir William Herbert was discovered, and in the particulars relating to this grant there was expressed a reservation to the Crown so far as regards a number of manors, of all quarries, mines, &c. Most of the lords of the manors now collecting dead rents and royalties upon output in South Wales, these reaching to a total quantity of about thirty million tons a year are the successors in title of Sir William Herbert, and consequently their interests are affected by the discovery of this grant. The matter will shortly be brought before the House of Commons by some of the Welsh members, and enquiry made as to how it is that the Crown rights in respect of this immense area are not being exercised, and at the same time a request will be made for proper calendaring and an expert examination of public muniments relating to this subject.—*Daily Graphic*.

FORTHCOMING MEETINGS.

"We shall be obliged if Secretaries or other Officials of Mining, Railway and other Companies will be good enough to advise us as early as possible of the date, time and place of their forthcoming meetings—whether statutory, semi-annual, annual, general or extraordinary, confirmatory or adjourned—in order that particulars may be announced for the benefit of our subscribers and more particularly our country readers. Balance sheets, reports and other matter to be submitted at such meetings should, where possible, accompany the intimations of the meetings sent."

Name of Company.	Date.	Nature of Meeting.	Place.	Time.
Australian Broken Hill Cons.	June 19	General	Winchester Ho.	12.30 p.m.
Moonside United G. M. Co.	June 19	General	Winchester Ho.	2.45 p.m.
Midland Coal, Iron, & Coke Co.	June 19	General	Cannon-street	11.0 a.m.
Kangaroo Silver Mines	June 20	General	Cannon-street	12 noon.
Anglo-Chilian Nitrate & Ryd.	June 21	General	Winchester Ho.	12 noon.
East Argentine Railway	June 22	General	Winchester Ho.	2.0 p.m.
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* A Paper read before the American Institute of Mining Engineers.

† The lode is mine.

‡ I am at present engaged in investigating this point, and hope to publish shortly the result of my research.

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LONDON: JUNE 16, 1894.

MINING IN MASHONALAND.

THE development of mineral resources in the vast territories
possessed by the British South Africa Company is a
matter of great interest not only to British capitalists but
to machinists, engineers, and metallurgists. Upon the profit-
able working of the gold and other metals discovered, there must
depend the opening up of markets hitherto unexploited to the
trade of this country—seriously enough in need of such new
channels. There can be no doubt now, in spite of the reckless
statements which were at one time made about its alleged
mineral worthlessness, that Mashonaland does possess important
auriferous deposits. Syndicates and companies, representing
in all a very large capital, have been raised in
London and elsewhere, to work the gold fields in
the Victoria district and other places. It is, therefore,
earnestly to be hoped that the progress of this incipient industry
will not be prevented or retarded by any want of co-operation
on the part of the rulers of the country. Yet this is the fault
of which the Chartered Company is accused by the mine
managers, shareholders, and others, who represent the invest-
ment of outside capital in Mashonaland. There has long been
a conviction that the acquisition of Mashonaland was only a
stop-gap in a scheme of colonisation and enterprise which had

for its first object the possession of Matabeleland. Among
South African prospectors and explorers the territories gained
for the Chartered Company by the recent campaign have always
had the reputation of being richer in gold and other
items of wealth than those which were originally
occupied, and it is no secret that the reports of the
company's own experts have confirmed this impression. The
result is a widespread feeling amongst the original settlers at
Salisbury and elsewhere that the company is likely to neglect
the further development of the country in which they have
invested their capital for the sake of the newly-acquired
territory further to the east. The position of Mr. Rhodes, as
a worker in the cause of Cape Colony trade, helps to support
this view, for while Matabeleland can be approached through the
British territory of Bechuanaland, the only avenue to Mashona-
land is through the Portuguese Mozambique Company's posses-
sions along the Pungwe River. The residents at Salisbury are
complaining that while the Mafeking extension from the Cape
railway is being rapidly pushed forward—Sir CHARLES METCALFE's
report gives the beginning of this month as the probable date
of its completion—the railway from Beira has only been perfunct-
orily constructed, and does not seem likely to get within reason-
able distance of Salisbury for a long while to come. It is alleged
that at present goods can be as cheaply and as quickly imported
by means of wagon transport, via the Transvaal, as they can by the
use of the vaunted narrow-gauge line from Port Beira. The conse-
quence is that mining operations are at a standstill, and at the pre-
sent moment there is not a single battery at work in Mashonaland.
The malcontents find fault with the administration of the com-
pany, and declare that more money is wasted in unnecessary
officials and office expenses in Capetown than would suffice to put
the gold fields of Mashonaland in possession of adequate facili-
ties. No doubt these complaints are largely the results of the
losses occasioned to many whose interests are inseparably bound
up with Salisbury by the departure of so many settlers to the
more novel regions of which Bulawayo is the centre, but there
seems a good deal in them which the Chartered Company should
take seriously to heart. The recent loan must have put the
company in possession of sufficient funds to carry
the Beira Railway far enough to be of practical
use in the working of Mashonaland's undoubted gold
deposits. The fact that shrewd men have been willing to
put their money into the country and to pay the company's tax
of 50 per cent. must go a long way to convince one of the pro-
fitable possibilities of its auriferous deposits. But if the com-
pany neglects it in this stage of its development for the possibly
more remunerative field of Matabeleland, the action will speedily
raise grave doubts in the minds of capitalists at home as to the
value of assets for which the company has paid away its original
million of capital. The best way to induce the subscription of
British money for the development of Matabeleland is to pro-
vide the spectacle of successful enterprise in Mashonaland. We
hope the company will respond to the appeals made to them by
the public meetings in Salisbury by pushing on vigorously with
the extension of the Beira Railway. The withdrawal from
the country of disgusted mining speculators would do more to
injure the position of the British South Africa Company than
any amount of criticism by Mr. LABOUCHERE or others.

THE TOLIMA MINING COMPANY.

THE report issued by the directors of this promising com-
pany, to be presented to the shareholders in assembled
meeting at the end of the month, is highly satisfactory
from the point of view of the past year's working, and distinctly
encouraging prospectively. Considering what a stiff battle
silver mining companies have to fight, it is remarkable, and not
a little significant, that the Tolima Mining Company should
have passed through so successful a year. The profit which has
been made amounts to the respectable sum of £84,452 12s. 11d.
on the working of the Frias Mine, and shareholders will have the
pleasure of receiving, on the 27th inst., a dividend of 10s. per
"A" and "B" share, being the second interim dividend of 10
per cent. (making 20 per cent.) for 1893. This is not in accord-
ance with the prophecies of some pessimistic individuals who
would have it that the directors and managers were not working
the mine in a proper manner, and not getting out of it all the
advantage possible, and we hope, therefore, these results will
silence their bickerings and expressions of dissatisfaction, for
which there is no real or just foundation. We shall expect to
see the shareholders assemble in a spirit—we will not say of
gratitude—but of appreciation of what has been done,
and that they will by their approval and congratulation
encourage those responsible at home and abroad to strive to do
even better. It is pleasing to note that the output during the
year has increased from 2484 tons to 2660 tons, and that the
grade of ore has improved from 371 ounces to 379 ounces of
silver per ton. This can by no means be construed into retro-
gression, yet we believe, and actually know, there are some men
who would cavil at this and argue, by some obscure and unintel-
ligible process of their own, that no progress has been made. As
the directors point out—and, of course, the explanation is full
of meaning—the continued decline in the price of silver has pre-
vented the profits of the mine corresponding with the improve-
ment in the quantity of silver produced. Another commendable
result of the year's work has been the introduction of further
economies. For instance, according to the superintendent's re-
turn, the total cost of production has been about £25 4s. per
ton of export mineral, as against £25 12s. for 1892; and if the
increased amount of exploratory work for 1893 over that of 1892
be deducted, the cost of production shows a still further reduc-
tion, being £20 11s. 10d., as against £22 3s. 8d. per ton. Then,
again, the further substantial reduction of £1 has been
made in the freight, notwithstanding which, we are
told, the transport of the ore has been effected with
regularity and despatch. The mineral in reserve on the

31st December was 4893 tons, nearly 2034 tons having been opened out during the year, whilst the most recent news from the mine points to the development of further reserves. In connection with this statement, the directors express themselves as being confident that the policy of actively continuing exploratory work along with the extraction of the export mineral will be approved by the shareholders as the only way of maintaining the permanent value and stability of the property. No doubt, many will feel disposed to censure them for feeling so confident. Shareholders, as a class, are accustomed to look at things from a point of view altogether different from what the ordinary individual would anticipate. They are strangely slippery, and he is a bold man who would confidently trust himself to their changeable humours. The directors of the Tolima Company have done this, we feel assured, in all good faith; still, we would advise them not to expect too much, and to prepare themselves for surprises. We have not entirely banished from our memory the manner in which they were received and criticised last year. The prediction we then uttered has been amply, and to our entire satisfaction, fulfilled.

The directors further inform us that the ditches which supply the water to the mine have not only been maintained, but that improvements have been effected whereby the supply of water is made more independent of storms and surface accidents; that work on the new shaft is progressing, and the new water-wheel is approaching completion. For a sound and prudent reason, which we take the liberty to quote, they recommend the policy of adding further to the reserve fund: "So long as the company has an inadequate working capital, the proceeds of the realised ore must be applied to meeting charges of production before the ascertained profits are applicable to dividends, and should the production of silver ever seriously fall off, the company might be forced to incur indebtedness at a time when a high rate of interest would have to be paid. The directors are, therefore, of opinion that further additions should be made to the reserve fund, so as to increase the working capital of the company. It will then be possible to declare dividends at a shorter interval from the raising and shipping of the ore than is at present the case." As we have always advocated the policy of keeping a large reserve fund, this recommendation and expression of opinion is in entire accordance with our views. We hope, therefore, the shareholders will give their unanimous approval to this. Turning to the report of the superintendent, we find it details a satisfactory progress of work; a sound state of affairs; and a promising forecast. With reference to the latter, he says:—"I consider our prospects of opening out further mineral reserves during the present year, 1894, are more promising than they were for 1893, if we keep on our present exploratory drivages. This I hope to be able to accomplish, and, at the same time, secure an output of mineral of not less than 2160 tons for the year, or an average of 180 tons per month." Altogether, we are much pleased with both reports. Considering the present aspect of things, it is gratifying and relieving to turn to this bright spot, which illuminates a little the depressing gloominess.

ENGLISH AND AMERICAN MINING MACHINERY.

A GOOD deal of discussion has been taking place in some quarters as to the relative merits and success of English and American mining machinery. It is asserted in some of the American technical journals that steam engines, air compressors, and rock drills, as well as gold stamps manufactured in the United States, are taking the lead of British goods in all parts of the world. This process of the displacement of British trade is stated to be especially noticeable in the markets of Central and South America, though it extends to every country where mining is carried on. Not only is this jubilant strain held by the United States Press, but it is at least acquiesced in in English circles. Yet, if it be true that American mining machinery is gaining a permanent position at the expense of British energies to anything like the extent which is stated it should surely be worth while to examine the influences which lead to this success. So far as statistics and other substantial evidence go the vaunts of the Yankee machinists seem to us at all events grossly exaggerated, if not in many cases wholly unwarranted. Outside of agricultural implements, in which the Americans are admitted to be doing an increasing trade, we do not find that the United States business in machinery is rapidly developing. The total value of general machinery, including mining, exported from the United States in the last three-quarters, has been £1,695,693, an increase of only £14,580, whereas in the first quarter of this year alone the English exports of machinery amounted to some two and a-half millions sterling. Nor does it appear in the light of detailed information that this gloomy view of our trade in mining machinery is borne out by facts. Of course, it must be premised that machinery cannot be considered as American which is built in this country upon lines first made familiar in American practice. It is only natural that the Americans, with metalliferous mining so active throughout their vast territory, should lead the way in the mechanics of the industry, though in the past few years, at all events, English invention has decidedly taken the lead from them. In the South American countries United States' engineers have certain advantages of transport and contiguity which have brought them many orders for mining plant, but even here the British firms manage to take a fair share of the current work. Everywhere else, it would be fair to say that, though United States' machinists have secured for themselves a large part of the expending demand for mining machinery they have left the position of the British firms quite untouched. So far as engines and boilers go, absolute reliance is still placed by consulting engineers only upon British materials

and workmanship, and the highest reputation continues to attach to them. The firms of engine builders who go in for mining work have probably never been so busy as they are at the present moment. But as to stamp batteries there can be no question as to the Americans leading the way. The ideal battery should work almost without human intervention, and the United States houses have been readier to make innovations to this end than their British competitors. The latter have, however, woken up to the progress which their rivals have made, and whereas a few years ago the heaviest stamps were about 750 lbs., mills are now being built in England with heads 1100 lbs. in weight, and which gives an enormous advance upon the previous yield of stuff crushed. The same qualities of solidity and durability which favour English trade in engines and boilers give home firms an enormous business in air compressors, dynamos and motors, rock breakers, and pumping and hauling plant. English machinists have within the past year turned out some of the finest electrical power transmission plants ever produced for mining properties in Australia, South Africa, and South America. They have shown themselves perfectly capable of dealing with the extraordinary development of electricity in this direction, and it seems to be only a question of time before separate hauling and winding plants will be abolished in all extensive mines, and the work done entirely by means of electrical transmission from one huge central house. As to rock drills, one cannot but be struck by the recent plenitude of English invention in this branch, and the fact that so many manufacturers of these machines seem to be getting a living, is surely strong enough evidence against the American monopoly of mining orders theory. This is a theory which has been founded upon no more solid a basis than the more rapid advance of American invention in isolated instances. It is only natural that countries should pass and repass in the struggle for mechanical perfection. It is sometimes alleged that British machinists are old-fashioned, that they put too much metal into their machines, and that they will not build them to suit their customers' needs. The fact, however, remains that they hold the lion's share of the world's trade in mining machinery, and that one never hears of a mining company hesitating about sending a repeat order to this country.

NOTES AND COMMENTS.

WE desire to sound a note of warning to our readers and to the public respecting the invitations that have been issued to them this week to subscribe to two new mining companies, whose fields of operations in Western Australia. We say out at once that we have no high opinion of either "The Coolgardie (Australia) Gold Mine (Limited)," or "The Cue Gold Fields of Western Australia (Limited)." Our advice is to leave them severely alone. The greatest benefit will result from this. We may look forward confidently to attempts to launch many other companies on the strength of the reputation Western Australia has acquired, as the colony at the present moment furnishes the promoter with a tempting bait to lure the unwary investor. Amongst them, no doubt, will be many genuine concerns, and to pick out the good from the bad will be a difficult matter. We think a safe guide will be, however, to wait until the colony is more thoroughly developed, until more evidence is furnished us of its permanent richness, and until efforts have been more successfully made to overcome the water difficulty. Promoters are taking advantage of the present "boom," but they will do no harm as long as the public use wise discretion, and treat with prudent suspicion the offers made to them. At the present time we can point to two or three genuine concerns which have lately been successfully floated, and their existence should be quite sufficient to satisfy the needs of the public for a considerable time to come. We sincerely hope they will, by their caution and wise restraint, convince the promoter they are not such ready and pliable tools as hitherto he has found them to be.

A new home company is on the eve of flotation—at least, from what we hear, there is little doubt that the small capital which the public are invited to subscribe will be forthcoming. The title of this new concern is "The Devon Gawton Company (Limited)," and its capital £25,000 in 25,000 shares of £1 each. Its directors are the same that manage the Devon Great Consols Company, with the addition of Charles Clark. It is not stated so, but we infer that the Chairman will be Mr. Peter Watson, C.C., a gentleman well known and highly respected in home mining circles. The object of the company is to acquire the lease of the Gawton Mine and property situate in Tavistock, Devon, as a going concern, a new lease of which has been obtained for 21 years, at a rental of £60 per annum, and a royalty of 1-25th on mineral sold, first deducting £1 10s. per ton for the price of arsenic, as an allowance for the refining expenses. No promotion money will be paid, and no allotment will be made unless the whole amount of capital is subscribed; and in the event of no allotment being made, the amount paid on application will be returned without reduction. The Gawton Mine adjoins the Devon Great Consols property, and the idea is, by placing both concerns as nearly as possible under the same proprietorship and direction, to have the command of the arsenic trade. It is well-known, of course, that it is arsenic which has of late paid the dividends to the shareholders of the Devon Great Consols, and no doubt from such an amalgamation as is here proposed, great benefit will result to both companies.

THE formation of the Frederick the Great Gold Mining and Recovery Company was quietly and effectually carried out, and operations will be commenced as soon as one or two preliminary works have been completed. There are some unusually promising features connected with the company that deserve mention. Its

board is as strong as a board well could be. Sir Andrew Clarke, Mr. Brinton, and Captain McTaggart, three men whose names carry great influence when in association with a public company, are members of it. Sir Andrew, as everybody knows, is the Agent-General for Victoria, Captain W. B. McTaggart, Chairman of the Nundydroog Gold Mining Company, and Mr. John Brinton, Chairman of the world-reputed Durban Roodepoort Gold Mine Company. Such is the board of directors. As for the mine, it may be well to quote from Mr. W. H. Grainger, Government Inspector of Mines for Victoria, who says: "Acting under instructions from the Secretary for Mines, I have the honour to report that I have visited and carefully inspected the Frederick the Great Mine at Sebastian. The reef has been worked from the surface to a depth of 580 feet through various levels, and was proved gold bearing a length of 2100 feet, and varied from 5 to 100 feet in thickness. It is a strong and well-defined formation, and along the bottom level for upwards of 800 feet in length has been proved to be over 30 feet in thickness, and carries three shoots of gold going underfoot . . . and I am strongly of opinion that sinking the shaft and operating on the reef at deeper levels will prove successful. This opinion is based on the fact of the gold bearing stone going strongly underfoot at the bottom level; and that mines in the Bendigo gold field to the south in a continuation of the same belt of auriferous country are now producing magnificent gold returns down to a depth of 2200 feet from the surface."

DURING the past half-year the directors of the Frontino and Bolivia Company have experienced considerable difficulties, which appear, however, to be surmounted now. In consequence, the returns from the mine have shown a falling off, compared with the previous six months, of 2438 tons crushed, 5166 ounces of bullion, and 2½ dwts. in the yield per ton. On the other hand, there has been an increase of 39½ tons of sulphurets and of £309 18s. in their value. The returns of bullion derived from the tributaries show a decrease of 446 ounces. The great trouble has been unusually wet and stormy weather. In October the excessive rains led to a series of landslips on the Pocuné watercourse, followed in the following month by further serious trouble caused by the subsidence of a long piece of the hillside. Both at Silencio and Salada—two of the company's best mines—the effect was serious, but, happily, later advices state that both are now thoroughly drained and the sinking of the shaft resumed. We congratulate the directors on being able to announce the successful resumption of the process of amalgamation at the Silencio mill, which has effected a saving of gold, and a reduction in the mill cost, and we sympathise with them on the troubles they have just gone through. We are pleased to note that an excellent and gratifying profit has been made, out of which a dividend of 1s. 3d. per share will be declared at the forthcoming meeting.

ONE of the most promising gold mining companies in South Africa is the Langlaagte Royal. At least, this is the opinion of a well-known and highly respected South African contemporary, which, having its offices and representatives on the spot, is in a position to judge. At one time the company was under a cloud, owing, it is alleged, to the late manager's anxiety to show exceptional results, at the expense of proper development. Now, the directors have found a manager who is content with extracting 8½ dwts. through the mill, and 4½ dwts. from the tailings, of a value of 45s., and this can be done at a cost of 25s. per ton. When Mr. Hamilton—which is the name of the new manager—took office, he found the ore reserves in the third level to consist of about 15,000 tons, all low grade, and returning a little over 5 dwts. Since November he has opened up the fourth and fifth levels, exposing over 40,000 tons of ore. So far, the development shows that both in quality and quantity there is no falling off in depth. "Allowing a maintenance of the present average," says our contemporary, "with 80 stamps the mine has a 60 years lease of life to run, with profits calculated at £10,000 a month, including the returns from tailings."

AN amalgamation scheme, matured under the conditions affecting the one proposed for the acceptance of the Silver King Mining Company, is a royal road out of the difficulties into which their mutual antagonism has landed both this and Waterloo Mining Company. Grouped closely together, the mines of both companies can most advantageously be worked by the same management, and can be operated under the most supreme disadvantage when the directorates of both are engaged in an internecine policy of mutual antagonism. Nothing was said as to the genesis of the litigation into which both concerns have drifted, but as to its paralytic effects in either direction, there were a good deal of significant utterances. As men of the world, the directors have for some time realised the suicidal nature of the disagreement subsisting between the neighbouring companies, and one or two overtures have been made with a view of putting a termination to it. Agreements for amalgamation have invariably to be preceded by the failure of one or two negotiations, and the present case was no exception. The advantages of such a course to both parties were so glaringly apparent that anything like a permanent failure to consummate some scheme of amalgamation was almost beyond possibility. Hence the agreement submitted to Tuesday's meeting, and cordially approved—an agreement that cannot fail largely to benefit the two companies it concerns.

A PROPOSAL to hold at Johannesburg an exhibition of concentrating appliances has had rather a curious termination. To institute such a competition presupposes the conclusion that the process is one necessary to mining economy. The sub-committee which was the outcome of the whole movement has set itself reflecting upon this problem, and the result is an almost unanimous declaration—"That it is easy to prove that concentration is usually a perfectly unnecessary process, as in nearly every

case it has to be followed by a subsequent treatment of the residue tailings, carrying at least 60 per cent. of the gold." The saving word "usually" put in here is intended to guard against the inclusion within the sweeping statement of such classes of pyritic ores as may not be sufficiently susceptible to the cyanide method. The sub-committee have been careful, when setting their deliberate opinion upon paper, to accompany it with a mass of information gathered during the investigations pursued. Bearing their signatures, the statement naturally carries a great weight, and could not have been advanced without the greatest care on the part of its originators. Thus the care with which the sub-committee have elaborately supported every one of their inferences, and the result is a contribution to mining literature which will be sure to be widely and closely read.

With the important difference of a 10s. instead of a 5s. liability upon the shares, the scheme of reconstruction formulated by the directors of the Booyesen Land and Mining Company was carried with but three dissentients at the extraordinary general meeting held on Monday, at the Cannon-street Hotel. This was the only question in dispute between the shareholders and the board. About the advisability—nay, the absolute necessity—for reconstruction there was complete unanimity. So promising a property in the general idea needed but patience, energetic management, and a moderate further capital for turning it into a thoroughly remunerative concern. From this there came the question, whether a five shilling or a ten shilling call would suffice for the future requirements. There the two sections of the shareholders parted company, but came together again in a sort of compromise upon the basis of a five shillings' immediate liability with a similar amount additionally in reserve. This upshot to the affair has been hailed on every hand with a complete satisfaction. Both sides agree now that the right thing has been done, and are looking hopefully towards the future. Mr. Tapp's foreshadowed policy of the curtailment of expenses and the exercise of patience has everything to recommend it. His own election to the board was a move in the right direction. Questions of policy and economy, while they certainly concern every shareholder, may be supposed to have a greater weight for the most largely interested among them, who is under a much stronger inducement to aim at their satisfactory and well-judged solution.

THERE will ever remain among professed accountants a wide difference of opinion as to the merits of the various ways in which the figures relating to a company's operations may be presented. The work has become an art, and, like every other art, has its schools. Shareholders, however, having less of a love of the thing in the abstract and more of a desire to see clearly how the particular companies in which they are interested are progressing, will not be disposed to quarrel about method as long as fullness and lucidity are observed. In this respect it appears from some criticisms published in a South African contemporary that the Goldenhuis Estate and Gold Mining Company sets an admirable example. There is said to be a deeper analysis of working expenditure than any other published in the Witwatersrand. No detail of cost is considered too trifling for entry, and the larger matters are systematically computed upon the basis of tonnage crushed. The completeness characterising this section of the accounts is extended elsewhere into the other branches, so that the proprietor can gather in a wonderfully short time a knowledge of how the whole working of his company is carried out. From the Chairman's speech it appears that the mine is for a time under something of a small cloud. One or two unexpected obstacles have cropped up in the mine, not likely to be permanent. The unfortunate intrusion of a small dyke is the most serious of these. The reef has, however, been picked up upon the other side, and it is not anticipated that there will be any permanent arrestment of progress.

SOME amusing accounts of the modes of life prevailing in Johannesburg, the now world-famed Transvaal mining centre, have been going the rounds of the papers. Copper coinage is said to be beneath the patronage of the citizen of that city, who pays his way exclusively in silver; while a chaotic irregularity of prices disturbs the orderly mind. It is perplexing to be charged 4s. for a bottle of stout, and then to get beef at 3d. a pound. Some severe criticisms are also directed against the style of habitation affected in the city. For amusement, these descriptions serve very well, but if they are put forward in serious complaint there are one or two considerations which must not be left out of mind. Johannesburg has sprung up with the rapid growth of a mining town, and its architects—if it had any—must have been actuated rather by utilitarian considerations than by a love of the beautiful. The general tone of these reports is a good deal too pessimistic. In reality the town is, speaking comparatively, very favourably situated. Its heat is less intense than that of the surrounding country, while it has an admirable water supply. At present, no doubt, the general appearance of the city might be more pleasing to the eye, but that is a defect which is being rapidly overcome, and in time will altogether disappear. There are indications that for Johannesburg there lies an extraordinarily prosperous career in the future. It bids fair to be one of the largest and most important cities in the whole of South Africa.

MR. HAWKER, who left Adelaide in company with Mr. Walter Duncan about the middle of March for the purpose of inspecting the mining properties in the Murchison district, has been interviewed, and a good deal of useful information elicited from him. His remarks, generally, are of a hopeful nature, and he expresses his conviction that "The Murchison is destined to become a great permanent gold producing district." Hardly one of the mines he went down could be described as "bad," and the reefs were in the majority of cases well-defined and without a fault. Good water, too—the scarcity of which is

the greatest difficulty Australia has to deal with—appears to be fairly plentiful. Well water is especially good in its quality. Timber, moreover, of a sort suitable for fuel is more than plentiful. Of other kinds there is, on the contrary, a scarcity; hence the difficulty of obtaining timber useful for mining purposes. Mr. Hawker, under the guiding questions of the reviewer, goes largely into questions of living, remarking on the importance of the subject to miners in the course of leaving for the West. The cost of living works out, of course, much higher than the case at home; but, judged in comparison with the rates ruling under similar conditions elsewhere, they are not excessive. To realise the optimism with which Mr. Hawker regards the Murchison, it is only necessary to state that he places it, as a reefing district, "far before Coolgardie." His concluding sentences about the climatic conditions prevailing at Murchison convey the idea that it is an excellent one to live in. With their experience at home of the last two months, however, Englishmen are not likely to be over critical in that matter.

OUR CITY ARTICLE.

FRIDAY EVENING.

THE MINING MARKET.

An easy and satisfactory carry-over.—A week of contrasts.—A dull beginning and an active close.—Markets strong towards the finish.

DULLNESS and activity have sharply contrasted themselves in the Mining Market during the past week. The paralysing influences of an impending settlement, with its attendant rumours, strongly depressed the market in the early days; while the satisfactory completion of the account, and the consequent recovery of confidence, occasioned the display of quite an unwonted activity towards the week's end. Monday being the last day of a more than usually quiet and featureless account, the business transacted was necessarily of a very narrow and restricted character. Kaffirs generally ruled slightly lower, the announcement of the total Rand yield for May bringing about no activity. Glencairns and Champ d'Or were almost the only exceptions to the general depression, the former gaining strength on an increase in the monthly return. Land shares were marked by a highly uncertain and changeable characteristic. Chartered and Bechs relapsed and rallied, the former eventually closing at 32s. 9d. and the latter unchanged. Diamonds were weak. De Beers relapsed to 16½, Jagers to 14½. Irregularity, referable to the insignificant nature of the business transacted, was the prevailing feature of the Miscellaneous Market, prices having something of a drooping tendency. It was easy to see, however, that this was merely the passing humour of an over-sensitive market, which would have required very little to give it another turn. A slightly weaker tone manifested itself in the Indian section, not, however, originating any movements of a decided character. On the succeeding day the carry-over was effected with ease, the account having been an unusually light one. An average contango of 7½ per cent. ruled upon South African gold shares. Operations for the new account were not pursued upon any extensive scale. The dullness of the recommendation, however, gave way to some extent, and a more confident tone asserted itself. Further relapses occurred in the land and diamond sections, which, however, were partly covered by subsequent dealings of a more hopeful kind. Rates were unexpectedly easy in the miscellaneous section, where there was very little activity. The one discouraging manifestation in this section was the weakness of Ooregums, which were depressed by various unsupported rumours. The tendency for improvement noticed in the Rand section of the market at the close of Tuesday intensified on the succeeding day into a decided firmness. There was no great preponderance of movement in any one direction, but the confident tone was unmistakably apparent. Shebas and May Deeps were the chief features in the general awakening, while lesser gains were recorded in all directions of the market. Land shares were distinctly better in tone. Chartered and Bechs were largely dealt in at a rise of 6d. in the former instance and of 1s. in the latter. Oceana, in view of the approaching confirmatory meeting, quickly hardened. Something more of uncertainty characterised the diamond market. An advance of 3-32 marked De Beers, while Jagersfontein relapsed to a smaller extent. The Miscellaneous Market remained unusually quiet throughout Wednesday, the insignificant changes taking place upon the various transactions being of an extremely uncertain character. It was reserved for Thursday to bring with it an improvement in all sections of the market. A movement making for betterment carried with it nearly all the active shares in the Rand department, and especially Simmers. One or two wholly inconceivable relapses were quite insufficient to establish anything like a counter current. Chief among the influences contributing to the firmer tone was the dissipation of a number of unfounded rumours, tending to create a depression during the preceding days. Indian shares fully recovered their buoyant tone. On every hand, in fact, there was an indication of recovered strength, auguring hopefully for the future.

British Mines.

Business in Cornish shares has been very limited, and with a falling tin market there is little disposition to buy. The run at Dolcoath has not yet been cleared, but the extent of the damage is now known, and in the course of a week it is probable that the engine will again start. Carn Brea is dull at 8½, East Pools quiet at 9½. When the new lease has been settled the shares will most likely command more attention. Killifreth is steady, but unchanged in price. Tincrofts at 12 are 10s. lower. West Kitty are nominally about 6½. Wheal Grenville are scarce, and probably 17½ or 17½ could be obtained, but sellers are very shy. Cook's Kitchen are quoted 12s. 6d. to 17s. 6d.; call paid of 10s. Risen: Blue Hills, 2s. 6d. Fallen: Carn Brea, 25s.; East Pool, 10s.; South Frances, 2s. 6d.; and Tincroft, 10s.

South African Shares.

A combination of influences, chief among which was the approach of the carry over, tended to depress the South African market at the commencement of the week. There was flatness in every department, the general movement being downward. Crown Reef fell ½ to 8½, while Rand Mines, Stanhope, and Wemmer were ½ worse. Gold Fields of Mashonaland dropped 3-32, smaller declines being recorded in Crossa, Ferreira, Goldenhuis, Heriot, Meyer and Charlton, New Chimes, Jumpers, Simmer and Jack, Village Main Reef, and Wolhuter. George and May were flat at 21s. 6d., East Rand relapsed to 13s. 6d., and Main Reef to ½, Randfontein being down to 16s. 9d. sellers, and Block B closing easier at 7s. 9d. Glencairns were the ex-

ception to the general weakness, attention being directed towards them by an increase of 800 ounces in the monthly yield. They closed 1s. better on the day. Champ d'Or and United Roopeports were rather better on the day's transactions. May Deep were somewhat in demand, and closed slightly firmer. Diamond shares were distinctly weaker. Continental sales sent De Beers down to 16, while Jagersfontein relapsed ½ in sympathy. Chartered having fallen to 32s., rallied to 32s. 9d. Oceana Land fell ½, while Bechs and South African Gold Trust were 6d. down. The carry-over was rapidly and easily effected. The contango on South African gold shares averaged about 7½ per cent. Comparisons with the making-up prices of the last account show a falling off in De Beers, Jagers, and Crown Reef, while the difference in South African shares generally was but a slight one. Business upon the new account was spiritless and dull at the commencement. Towards the close, however, there was something of a rally, and the losses occasioned by some rather heavy sellings during the morning were afterwards recovered. Simmer and Jack exhibited the strength at a rise of 3-32 to 7½, and outside a demand sprang up for May Deep Level, which were 1s. higher at 10s. 3d. bid. Meyer and Charlton rose ½ at 5½ buyers, and Sheba hardened the turn to 29s. 3d. These gains were counteracted by a fall of ½ in Crown Reef to 8½. Goldenhuis Estate, Wemmer, and Wolhuter were each somewhat lower, George and May showed a further loss of 6d. at 21s., while small losses occurred in Alexandra Estate, Glencairn, and Modderfontein. Some heavy sellings in Chartered caused a relapse to 31s. 4½, the improvement in the tone of the market, however, carrying them slightly higher towards the finish. Diamonds relapsed and rallied during the day. De Beers having fallen to 16½, rose to 16½, while Jagers closed ½ higher on the day at 14½. A firmer and more confident tone manifested itself in this department of the market on Wednesday. Movements in both directions nearly counter-balanced each other, but there were no large offerings. Sheba and May Deep were enquired for at distinct improvements, the buoyancy in the latter case being referable to the reconstruction scheme. Consolidated Gold Fields remained at 2½, Oceana improved to 1½, while Central Africans rallied to 4s. 3d. Crown, on the other hand, continued dull at 8½. Robinson's were depressed at a loss of 5-32 to 69-32. Rand Mines and Salisbury were each ½ worse, and losses of ½ occurred in Crown Reef, Ferreira, Jubilee, Langlaagte Royal, and Wolhuter. Glencairn fell 6d. to 35s. 9d., and Goldenhuis Main Reef, Pearl Central, Modderfontein, and Randfontein were not quite so buoyant. Considerable activity manifested itself among land shares. Chartered were widely in demand, and closed 6d. higher at 32s. 9d. Bechs were lively, and finished 1s. better at 31s. 1½. Among diamond shares De Beers were dealt with at an advance of 3-32 to 16½. Jagersfontein, on the other hand, were dull, and fell ½, closing at 14½. A greatly improved tone was exhibited among South African shares on Thursday. The settlement having been happily effected, confidence re-asserted itself, and operations were resumed upon a larger scale. Simmer and Jack were the most conspicuous shares in the market at a rise of £8. Cities similarly improved to 14½. Advances were also recorded in Langlaagte, Salisbury, Heriot, Stanhope, Wolhuter, Worcester, Chimes, and George and May. The rise in the latter shares was referable to the satisfactory return of 1323 ounces. In opposition to the upward movement, slight recessions occurred in Goldenhuis Estate, Village Main Reef, and Reitfontein. Diamond and Land shares were rather doubtful in their movements. De Beers rose to 16½, while Jagers were weaker at 14½. Chartered were strong at 32s. 3d., while Bechs, on the other hand, reacted to 31s. Taken altogether, the market was in a decidedly better condition at the close of the day than at the opening. Thursday's improved tone was again apparent in the South African section of the market at the opening this morning. In the course of the day, however, the activity was not maintained, and towards the close dullness again supervened. Simmer and Jack, which have been the feature of the week, remained strong at 8½. With reference to the African Consolidated shares, it may be mentioned that a cablegram has been received from the manager sent out to take charge of the company's coal property in South Africa, to the effect that he has arrived at Middleburg, and taken possession of the company's works in that district, with which he expresses himself well satisfied. Advice has also been received that the seam of coal recently reported to have been struck appears to be of considerable thickness, having been cut into 6 feet without "being through." Land shares were in a very doubtful condition. Chartered and Bechs both closed below the best. Beyond this, the market has been particularly featureless. Risen: African Gold Recovery, 1s. 3d.; Bechnanaland, 1s.; City and Suburban, 2s. 6d.; Crown Reef, 2s. 6d. (allowing for dividend); Durban, 2s. 6d.; East Rand, 6d.; Griqualand West, 2s. 6d.; May Consolidated, 6d.; May Deep Level, 1s.; Moodies, 6d.; North Transvaal Land, 6d.; Sheba, 2s.; Simmer and Jack, 20s.; South Simmer, 2s. 6d.; Spitzkop, 1s. 6d.; Sutherland Reef, 6d.; Transvaal Estates, 6d.—Fallen: Block B, 1s.; Chartered, 6d.; Consolidated Gold Fields, 1s. 3d.; Exploring, 2s. 6d.; Goldenhuis Estates, 5s.; Goldenhuis Main Reef, 6d.; Henry Nourse, 2s. 6d.; Jubilee, 2s. 6d.; Jumpers, 2s. 6d.; Kleinfontein, 1s. 3d.; Langlaagte Royal, 2s. 6d.; Main Reef, 1s. 3d.; Mashonaland Agency, 1s. 3d.; Meyer and Charlton, 2s. 6d.; Modderfontein, 1s.; Mozambique, 1s. 3d.; New Crossa, 1s. 3d.; Oceana, 3s. 9d.; Orange Free State, 10s.; Randfontein, 1s.; Rand Mining, 5s.; Rietfontein, 2s. 6d.; Robinson, 2s. 6d.; Salisbury, 2s. 6d.; South African Gold Trust, 6d.; South African Trust and Finance, 6d.; South Land (15s. paid), 1s. 6d.; South Land (fully-paid), 1s. 6d.; Stanhope, 1s. 3d.; Village, 2s. 6d.; Wolhuter, 2s. 6d.; Zambesia, 5s.

Indian and Miscellaneous Shares.

Early in the week the Indian and Miscellaneous market was in a very doubtful condition. One or two sales, small absolutely, but large in relation to the inconsiderable volume of business transacted, exerted rather an unfavourable influence upon prices. Nundydroogs were conspicuous for their firmness in the Indian market, while Ooregums were rather weaker upon extensive sales. Small declines were also noticeable in Champion Reef, Balaghat-Mysore, and Nine Reefs. In other directions there was some accession of firmness, Montana, Colombian Hydraulic and Australian Broken Hill being rather better. The carry-over in this section of the market had been anticipated with some interest. Expectations of stiffer rates, however, were at no time of the day realised. Harquahala, Montana, and Kapangas, from various causes, were distinctly better in tone. Among the Indian shares, Ooregums were further depressed upon a number of indefinite rumours. Nundydroogs, on the contrary, improved on a favourable report from the property. The Miscellaneous market remained quiet throughout Wednesday. Seeing, however, that even the smallest operations, in view of the restricted nature of the business transacted, produced a disproportionately large change upon the market, prices vacillated more than might have been expected. Broken Hill Proprietary and Harquahala each receded a trifle; but Ooregum, which at one time were offered at 4, finished 4½ buyers. Some dealings took place in Coolgardie (Australia) Gold Mine. Cape Copper recovered ½ to 1½; but Rio Tinto fell ½ to 18½. The Indian and Miscellaneous market was favourably affected by the generally better tone which manifested itself in all direc-

tions during Thursday. There were extremely few instances in which the more active shares did not better. Tolima A and B each rose $\frac{1}{4}$, Aladdin advanced $\frac{1}{4}$ to $\frac{1}{2}$, De Lamar was $\frac{1}{2}$ better at 20s., and the shares in Broken Hill mines participated in the better tone. Australian Broken Hill rising 9d. to 3s., British Broken Hill 9d. to 4s. 3d., and Broken Hill Proprietary 1-32 to 2 21-32. But nowhere in the market was the improvement more perceptible than in the Indian section. Ooregums rallied to $\frac{1}{4}$, and the Preference shares to $\frac{1}{2}$. Nundydroogs were largely in demand, closing 26s. 6d. Gold Fields of Mysore, Mysore Reefs, and South-East also were firmer. Dullness has again returned to the Indian and Miscellaneous department during the course of to-day. Among Indian shares the feature has been the relapse in Ooregum, which closed at $\frac{1}{4}$. Mysore also have been dull. Kapangas and Kaboongas have experienced a small filip on favourable reports from the other side. These, with the rise of Poorman's to 7s., have been the only features of interest in this department during to-day. Risen: American Belle, 9d.; Australian Broken Hill Consols, 1s.; British Broken Hill, 1s. 6d.; Burma Ruby, 2s.; Cape Copper, 1s. 3d.; Copiapo, 1s. 6d. (allow div.); De Lamar, 1s.; Gold Fields of Mysore, 6d.; Kaboonga, 1s.; Kapanga, 1s. 3d.; Montana, 2s. 9d.; Mysore West, 6d.; Nundydroog, 1s. 3d.; South-East Mysore, 6d.; Tolima A, 5s. (allow div.); do. B, 10s. do.; West Australian, 2s. 6d.; do. 4s. paid, 1s. Fallen: Alaska, 2s. (allow div.); Balaghat, 6d.; Brilliant Block, 1s. 3d.; Champion Reef, 1s. 3d.; Colombian Hydraulic, 6d.; Elkhorn, 6d.; Golden Feather, 6d.; Harquahala, 1s.; Libiola, 2s. 6d.; Macate, 6d.; Mount Morgan, 2s. 6d.; Mysore, 1s. 3d.; Ooregum, 5s.; do. Preference, 3s. 9d.; Poorman, 6d.; Rio Tinto, 3s. 9d.

SETTLING DAYS.

(Ticket Days.)	JUNE.	(Account Days.)
Wednesday, June 27		Thursday, June 28.
	JULY.	
Wednesday, July 11.		Thursday, July 12.
Thursday, July 26.		Friday, July 27.

CONSOLS SETTLING DAY.

Wednesday, July 4.

TERTIARY GABBROS IN THE ISLE OF SKYE*

THEIR BANDED STRUCTURE.

By SIR ARCHIBALD GEIKIE, LL.D., D.Sc., F.R.S., F.G.S., and J. J. H. TRALL, Esq., M.A., F.R.S., Sec.G.S.

AFTER calling attention to the previous references to the pseudo bedding and banding of the gabbro masses of the Inner Hebrides, the authors described the rocks which form the rugged ridge of Druin-an-Eidhne, near the head of Glen Sligachan. This ridge is made up of parallel beds, sheets, or sills disposed in a general N.W. direction with a prevalent easterly dip. Four distinct types of gabbro occur:—(1) dark, fine-grained, granitic gabbros; (2) well banded gabbros; (3) coarse grained massive gabbros; and (4) pale veins of a highly felspathic gabbro. The relative ages of the banded and granitic gabbros have not been definitely settled; but the coarse, massive gabbros are certainly intrusive in the banded series and the pale veins cut all the other varieties. The paper dealt mainly with the banded gabbros. They occur in successive sheets or sills which vary from a few feet to many yards in thickness, and consist of parallel layers of lighter and darker material which correspond in direction with the trend of the sheets, and are usually inclined to the east or south-east at angles ranging from 20° to 30°. In some cases the bands can be seen to have been puckered or folded. The minerals entering into the composition of the banded, as also of the other varieties, are labradorite, pyroxene, olivine, and titaniferous magnetite. The banding is due to a variation in the relative proportions of the different constituents, and especially in the amount of magnetite. Some narrow bands and lentils are composed entirely of pyroxene and magnetite. The microscopic characters of the rocks were described, and it was shown that the minerals of the banded gabbros have not been crushed or broken since they were formed. The authors concluded that the banding is the result of the intrusion of a heterogeneous magma, and that similar banding in certain portions of the Lewisian gneiss may have been produced in the same way.

Discussion.

Dr. JOHNSTON-LAVIS wished to know if there was any special orientation of the crystals in the different bands, and also whether the thinner bands were the more basic, as these facts would help to elucidate their origin. He quite agreed with the authors that the differentiation of the magma was anterior to its taking up its present position. He remarked that frequently effusive rocks showed a banding of this nature due to differential shearing between portions of the magma of different viscosity, and such might be the case also in injected rocks; hence the reason of the questions that he had put.

Professor BLAKE remarked that one of the authors, after paying a visit to Anglesey, had described the general aspect and structure of certain gneiss-like rocks in almost identical terms with those now used for the gabbros of Skye, which the authors regarded as tertiary; yet, on the ground of such aspect and structure, the Anglesey rocks were considered to be of the age of the Hebridian gneisses. He hoped that it would now be admitted that the age of rocks could not by these particulars alone be determined.

Dr. HICKES said that the facts stated by the authors were very interesting, as bearing on the possible cause of the banded structure in some of the Lewisian gneisses. It was now generally admitted that the more massive of the pre-cambrian gneisses must have had an igneous origin; but the mode by which the banding had taken place remained somewhat doubtful.

Mr. HARKER found the paper of much interest from a purely petrographical point of view, as well as for its bearing on the origin of ancient gneisses. Banded structures are well known in many basic plutonic masses, but the examples described in this paper are more striking than any hitherto recorded.

Mr. J. HOBT PLAYER also spoke.

Sir ARCHIBALD GEIKIE stated in reply that, so far as he knew, no relation was observable between the breadth of the bands in the gabbro and their basicity, nor at the locality referred to in the paper was there any marked orientation of the crystals parallel to the planes of banding. Among some of the basic sills of the Western Isles, however, such orientation was strongly developed, and he particularly cited a troctolite sheet in the Island of Rum, in which the laminar arrangement was so conspicuous that the rock might at first be mistaken for a schist. The observations recorded in the paper did not seem to him to have any bearing on the age of the rocks in the centre of Anglesey, referred to by Mr. Blake, regarding which his opinion remained unchanged.

* (From a Paper delivered at a Recent Meeting of the Geological Society of London.)

COMPANY FINANCE.

Reports, Balance Sheets, Dividends, &c., of Mining and other Companies.

Frontino and Bolivia Gold Mining Company.

The directors' report to be presented at the half-yearly meeting, to be held on the 27th ult., has the following:—The returns from the mines worked by the company during the half-year ending 31st December, 1893, have been as follows:—

Tons of Mineral.	Produce of Bullion, ounces.	Average Produce, dwts.	Weight and Value of Sulphurets.
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17,197 16,791 19½ £7074 4s. 9d.

The returns from the tributaries during the same period have been 519 ounces of bullion. Compared with the returns of the previous six months the above table shows a decrease of 2438 tons crushed, a decrease of 5166 ounces of bullion produced, a decrease of 2½ dwts. in the yield per ton, an increase of 39½ tons of sulphurets, and an increase of £309 18s. in the value of the sulphurets. The returns of bullion derived from the tributaries show a decrease of 446 ounces. The sum realised for the bullion and the valuation of the sulphurets, which, as explained later in this report, have not yet arrived in England for realisation, amount together to £43,413 8s. 7d., as against £49,765 0s. 4d., the produce of the previous six months, being a decrease of £6351 11s. 9d. During the three months of the current half-year regarding which advices have been received, the number of tons crushed has been 7280, the number of ounces of bullion therefrom has been 7581, and the average yield per ton has been 1 ounce and $\frac{3}{4}$ of a dwt. The yield of sulphurets for the three months has been 58 tons. The returns from the tributaries' mines have been 423 ounces of bullion. The total estimated value of such bullion and sulphurets has been £19,311 3s. 3d. The profit and loss account now submitted shows a profit of £12,979 7s. 5d. The profit on the previous half year was £10,839 12s. 8d. The profit left undivided as on the 30th June last was £26,781 15s. 4d. Out of this sum a dividend of 9d. per share was paid on 14th July, a dividend of 6d. on 14th October, and a dividend of 1s. 6d. on 30th December, which several dividends, with £900 put to reserve, amounted together to £18,291 0s. 6d., leaving £8490 14s. 10d. remaining to the credit of profit and loss. To this sum has now to be added £12,979 7s. 5d., the ascertained profit for the half year, making altogether £21,470 2s. 3d. to credit. The directors now recommend a dividend of 1s. 3d. per share, payable as to 9d. per share in cash on the 30th June instant, and as to the remaining 6d. per share by payment of the call of 6d. per share made payable on the 29th June. They propose to put a further sum of £450 to the reserve fund. After the above several payments, a sum of £12,978 4s. 9d. will remain to the credit of the profit and loss account, the capital will be augmented by £3216 11s., and the £1 shares of the company will then be fully paid up. The reserve fund at the date of this report consists of £7598 12s. 10d. Consols, and £99 8s. cash, arising from dividends uninvested. Such cash will be dealt with at the same time as the £450 now proposed to be added to reserve is invested.

— The board of the DURBAN-ROODEPORT GOLD MINING COMPANY (LIMITED) has declared an interim dividend of 3s. per share, payable on June 28.

— The LANGLAAGTE ESTATE AND GOLD MINING COMPANY (LIMITED) announces that cheques for the dividend of 12½ per cent. declared on March 31 last, have now been posted and that holders of bearer shares should present coupon No. 2 to the London agents, 8, Princes Street, E.C., or to the Banque Internationale de Paris, Rue St. Georges, Paris.

— The NEW CLEVER ESTATE AND GOLD MINING COMPANY (LIMITED) has issued debentures to the amount of £10,000, redeemable by four annual drawings.

— The directors of the MEYER AND CHARLTON GOLD MINING COMPANY (LIMITED) propose in future to hold meetings once a year; in February.

— The ORIEL MAIN REEF GOLD MINING COMPANY (LIMITED) has been put into voluntary liquidation. Its assets consist of a 10 stamp mill and 12 claims, valued at £1000 to £1200 altogether; 16,000 Vulcan shares, worth £800 or less; and £1600 of cash.

— The Chairman of the FERREIRA GOLD MINING COMPANY (LIMITED) speaks of a dividend of 100 per cent. at the end of the present month, says the *Financial News*. No Rand mine has yet declared a higher dividend than 85 per cent., and that distribution also belongs to the Ferreira.

— The UNITED IVY REEF GOLD MINING COMPANY (LIMITED) directors suggest that the Woodward and Walker battery, claims, and water rights should be purchased for £2000, and, accordingly, the capital is to be increased. Unless the purchase be carried through, the company will be left with six stamps and an insufficient water supply, with which it would not be possible to continue working the mine until the Moodie's electrical power is available.

— The SHERA GOLD MINING COMPANY (LIMITED) announces that an interim dividend of 1s. per share, free of income tax, will be paid on the 2nd July, 1894 to all shareholders on the register on the 16th June, 1894. The transfer books and registers of members will be closed from the 18th to the 30th June, both days inclusive.

— A dividend at the rate of 12 frs. per share has been declared by the COLOMBIA GOLD MINING COMPANY, and is now payable at the offices of Baring Brothers and Co. (Limited) against No. 4 Coupon at the sterling rate of 9s. 6d.

— The directors of the COLORADO NITRATE COMPANY (LIMITED) propose a dividend of 4 per cent., making 7 per cent. for the year ending 30th June.

— The directors of the LIVERPOOL NITRATE COMPANY (LIMITED) have declared a dividend of 10 per cent., making 20 per cent. for the year ending 30th June. This is in addition to the bonus paid in February.

— The secretary of the ISLE OF MAN MINING COMPANY (LIMITED) sold on Saturday 100 tons of this company's ore at £8 16s. per ton.

— The directors of the LONDON AND SOUTH AFRICAN EXPLORATION COMPANY (LIMITED) have declared a dividend of 3s. per share, less income tax, for the quarter ending the 30th inst., payable on and after that date.

150 MINERS KILLED.—Owing to an accumulation of fire damp a series of disastrous explosions occurred on Thursday night in the Johann and Franziska coal mines at Karwin belonging to Count Larisch, near Troppau. More than 150 of the miners and engineers have perished in the catastrophe. Both the mines are now on fire, and the ventilating shafts have been destroyed. Any search for the bodies is at present impossible.

THE METAL MARKETS.

LONDON METAL MARKET.

THE METAL MARKET—LONDON, JUNE 15.

Copper.

THE opening of the G.M.B. market on Monday was active, and in the course of the day about 1000 tons changed hands, sharp cash fetching £38 13s. 9d. to £38 16s. 3d., and three months £39 3s. 9d. and £39 2s. 6d. About 800 tons were done on Tuesday, but at lower prices, three months touching £38 15s. 6d. and spot closing at £38 10s. The next day's business was of very small extent, and left values unaltered. Yesterday the tone was quite flat, three months changing hands at £38 15s. down to £38 11s. 3d., whilst £38 7s. 6d. to £38 2s. 6d. was paid for s.c. To-day we have had a better market, with transactions at £38 2s. 6d. and £38 5s. s.c., and £38 8s. 9d. to £38 12s. 6d. three months, closing steady at £38 5s. to £38 6s. 3d., and £38 11s. 3d. to £38 12s. 6d. respectively. Demand for fine sorts continues slack.

Tin.

opened quiet but steady, without change in price, a moderate quantity of cash Straits being done at £71 7s. 6d., and three months at £71 15s. Tuesday's market developed a fair amount of activity, the turnover totalling about 200 tons, but the spot value at the close showed a loss of about 7s. 6d. per ton, and on Wednesday we witnessed a heavy fall under the influence of the large shipments from the Straits and somewhat persistent sales. Spot Straits touched £70 7s. 6d., and on Thursday last a further half-crown. This morning the market rallied slightly, and £70 7s. 6d. was paid for s.c., but in the afternoon the tone was easier again, and we close quiet at £70 2s. 6d. to £70 5s. s.c., and £70 10s. to £70 12s. 6d. three months. Billiton tin opened at 43 fl. s.c. and 43½ fl. three months, and declined steadily, closing at 42½ fl. and 42½ fl. respectively. The Dutch market has been flat throughout this week, and prices experienced a sharp decline, closing to-day about £1 10s. below the highest.

Fig Iron.

Scotch shipments last week amounted to about 5800 tons, which was also the quantity shipped in the corresponding period of last year. The Scotch market opened with a decline from 41s. 9d. to 41s. 7½d., since which a rally has been induced by anticipations of a strike amongst the miners, and up to 42s. was paid. Yesterday's business was at still higher prices, 42s. 2½d. being finally paid, and the close is strong at 42s. 1½d. s.c. Scotch buyers. Hematite is now quoted 44s. 2½d., and Cleveland 35s. 6d.

Lead.

The condition of this market shows no improvement. The tone continues extremely dull, and the quotation is again a shade lower than at last week's close, the present values being £9 1s. 3d. for soft foreign, and £9 3s. 9d. to £9 5s. for English.

Spelter.

There has been no revival of enquiry for this article since last week, and we close quiet at £15 7s. 6d. for ordinaries, and £15 12s. 6d. for specials.

Antimony.

is inanimate at £32 to £32 10s.

Quicksilver.

There is nothing new to report on this article. The first-hand price continues at £6, and seconds are still quoted £5 19s.

The following are to-night's (June 15) prices of metals:—			
Copper.			
Tough cake and ingot	...	40 7 6	40 17 8
Best selected	...	41 5 0	41 15 0
Sheets and sheathing	...	49 0 0	50 0 0
Flat bottoms	...	52 0 0	53 0 0
Chill bars	...	53 5 0	53 11 3
Good merchantable	spot, & 3 months respectively	38 5 0	38 11 3
Copper tubes, seamless	...	...	0 9 7½
Alloys.			
BRASS: Wire	...	...	0 0 5
" Tubes (solid drawn)	...	...	0 0 5½
" Sheets	...	...	0 0 5½
PHOSPHOR BRONZE: Alloys II.	...	...	88 0 0
" III. or V.	...	...	93 0 0
" VII.	...	...	95 0 0
" XI.	...	...	95 0 0
" Vulcan brand Al R.C.	...	80 0 0	85 0 0
DURO METAL	...	80 0 0	85 0 0
BULL'S METAL	...	...	70 0 0
Ferrobronze (Vivian's).			
Ingots	per lb.	0 0 5½	...
Ordinary sheets, plates, bolts and bars	...	0 0 6½	...
Screw bolts and nuts	...	0 0 8½	...
Pump rods, plain	...	0 0 7½	...
" finished	...	0 0 10½	...
DELTA METAL: No. 4 (per ton)	...	...	73 10
" Sheets and plates (per lb.)	...	0 0 10½	...
" Bars, round, square, flat (per lb.)	...	0 0 9½	...
" hexagon (per lb.)	...	0 0 9	...
Tin.			
English, ingots, f.o.b.	...	73 5 0	73 15 0
" bars	...	74 5 0	74 15 0
" refined	...	75 5 0	75 15 0
Straits, spot and 3 months respectively	...	70 2 6	70 10 0
Australian spot, and three months respectively	...	73 15 0	71 2 6
Banco (in Holland)	...	73 7 6	73 10 0
TIN PLATES: Charcoal, best quality	per box	0 16 0	0 18 0
" ordinary	...	0 14 0	0 15 6
" Coke, best quality	...	0 11 0	0 11 6
" ordinary	...	0 10 0	0 10 3
These prices of tinplates are f.o.b. at Swansea: at Liverpool 6d. per box more.			
Iron.			
Fig. G.M.B., f.o.b., Clyde, spot	...	...	1 2 13½
" Scotch pig, No. 1 Garabherrie	...	...	2 10 0
" Coltness	...	...	2 14 0
" Clyde	...	...	2 9 0
" Govan	...	...	2 8 0
Bars, Welsh, f.o.b. Wales	...	...	5 2 6
Plates	...	...	5 5 0
Bars, Staffordshire, at works	...	...	5 7 6
Sheets	...	...	6 10 0
Plates	...	...	6 10 0
Hoops	...	...	6 10 0
Ship plates, Middlesbrough	...	...	4 17 6
Swiss: English spring	nominal	...	50 0 0
" cast	...	...	16 0 0
" Halls at works, according to section	...	3 12 6	4 12 0
Lead.			
Spanish or soft foreign	...	...	9 1 3
English pig, common	...	9 3 0	9 5 0
" L.B.	...	...	9 12 6
" sheet and bar	...	...	10 12 6
" pipe	...	...	12 0 0
" white	...	...	16 0 0
" patent shot	...	...	13 10 0
Spelter.			
Shlehan ordinary brands	...	...	15 7 6
" special brands	...	...	15 12 6
English Swanses	...	...	16 2 6
Sheet Zinc	...	18 5 0	19 10 0
Antimony.			
Antimony	...	32 0 0	32 10 0
Quicksilver.			
Flasks, 75 lbs. warrants	...	...	5 19 0
Ore, c.l.f., U.K. ports	per unit.	...	...
1st quality, 50 per cent. and upwards	...	0 0 10½	0 0 11½
2nd " 47 per cent. to 50 per cent.	...	0 0 8½	0 0 10½
3rd " 40 " 47 per cent.	...	0 0 8	0 0 10
99-99½ per cent. (guaranteed 99 per cent. min.) in ingots (1 cwt. lots)	...	...	0 1 10½
do (1 ton lots)	...	...	0 1 9½
99-99 per cent. guaranteed	...	...	0 1 7
Nickel.			
Nickel	...	...	0 1 7

Fig. G.M.B., f.o.b., Clyde, spot										1 2 13 1/2	
22	Scotch pig, No. 1	Garabherrie	...	...	...	...	...	...	...	2 10 0
22	...	Coltness	...	...	...	...	...	...	...	2 14 0
22	...	Clyde	...	...	...	...	...	...	...	2 9 0
22	...	Govan	...	...	...	...	...	...	...	2 8 0
22	Bars, Welsh, f.o.b. Wales	...	...	...	...	...	...	...	...	5 2 6
22	Plates	...	...	...	...	...	...	...	...	...
22	Bars, Staffordshire, at works	...	...	...	...	...	...	...	...	...
22	Sheets	...	...	...	...	...	...	...	...	6 10 0
22	Plates	...	...	...	...	...	...	...	...	6 7 6
22	Hoops	...	...	...	...	...	...	...	...	5 10 8
22	Ship plates, Middlesbrough	...	...	...	...	...	...	...	...	4 17 6
22	BRASS: English spring	nominal	...	...	...	...	...	...	...	50 0 0
22	cast	...	...	...	...	...	...	...	...	18 0 0
22	Halls at works, according to section	Lead.	...	...	...	...	...	...	...	4 12 6
Spanish or soft foreign											9 13
English pig, common											9 5 0
22	L.B.	...	...	...	...	...	...	...	...	9 12 6
22	sheet and bar	...	...	...	...	...	...	...	...	10 2 6
22	pipe	...	...	...	...	...	...	...	...	10 2 6
22	red	...	...	...	...	...	...	...	...	12 0 0
22	white	...	...	...	...	...	...	...	...	16 0 0
22	patent shot	...	...	...	...	...	...	...	...	13 10 0
Silesian ordinary brands											15 7 6
22 special brands											16 18 8
English Swanes											16 2 6
Sheet Zinc											13 10 0
Antimony.											...
Antimony											31 10 0
Quicksilver.											...
Flasks, 75 lbs. warrants											5 19 0
Ore, c.l.f., U.K. ports											per unit.
1st quality, 50 per cent. and upwards											0 10 1/2
2nd 47 per cent. to 50 per cent.											0 9 1/2
3rd 40 47 per cent.											0 10 1/2
Aluminium.											Per lb.
90-99 1/2 per cent. (guaranteed 98 per cent. min.) in ingots (1 cwt. lots)											0 1 10 1/2
do do (1 ton lots)											0 1 9 1/2
Nickel.											...

Chamille	<i>L</i>	36	36	36	2 0	-/3 Sept. '92	2 0	35,0	Spain	5, Queen-street-pla
Argentina	<i>C</i>	—	—	—	1 0	—	1 0	133,165	Corsica	16, Philip-lane.
English Cr. Spelter	<i>L</i>	—	—	—	1 0	5% Dec. '92	1 0	84,000	Lombardy	9, Queen-street-pla
Fortuna	<i>L</i>	10/-	15/-	36	2 0	-/8 Sept. '92	2 0	25,800	Spain	5, Queen-street-pla
Idibols	<i>C</i>	3	2 1/2	2 1/2	3 0	5/- Mar. '94	3 0	50,400	Italy	Dashwood Ho., E.C.
Idinare	<i>L</i>	36	36	36	3 0	4/- May '94	3 0	14,958	Spain	6, Queen-street-pla
Marbella	<i>L</i>	54/-	56/-	56/-	10 0	5/- Mar. '93	10 0	25,000	Spain	78, Queen Victoria-s
Mason & Barry	<i>C</i>	2 1/2	3 1/2	3 1/2	5 0	2 1/2- Mar. '94	5 0	185,172	Portugal	87, Cannon-street.
Oscar	<i>C</i>	—	—	—	5 0	—	5 0	117,240	Norway	54, Austin Friars.
Pontarab	<i>C</i>	2/3	2/9	2/9	3 0	—	3 0	67,889	Italy	6-7, Queen-street-pl
Pontgarand	<i>L</i>	—	—	—	20 0	11/8 Dec. '93	20 0	14,000	France	6-7, Queen-street-pl
Ro Tinto	<i>C</i>	13 1/2	13 1/2	35/-	10 0	7/- May '94	10 0	325,000	Spain	30, St. Swithin's-lan
Ro. (Nort. Ronda)	<i>C</i>	14	105	105 1/2	100 0	6/- Apr. '94	100 0	5,165,960	Spain	30, St. Swithin's-lan
Ro. (Sud do.)	<i>C</i>	102	108	105 1/2	100 0	5% Apr. '94	100 0	1,127,400	Spain	30, St. Swithin's-lan
Rogand	<i>C</i>	7/8	9/8	—	10 0	—	9 10	50,000	Switzerland	25, Bishopsgat-st. W.
Tharls	<i>C</i>	4 1/2	4 1/2	4 1/2	12 1/2	5% Mar. '94	10 0	695,000	Spain	Glasgow
West Prussian Pr.	<i>C</i>	—	—	—	10 0	8% Mar. '94	10 0	6,450	Germany	Walbrook Ho., E.C.
West Prussian Or.	<i>C</i>	—	—	—	10 0	8% Mar. '94	10 0	14,240	Germany	Walbrook Ho., E.C.

"THE MINING JOURNAL" SHARE LIST (African Mines continued).

Name.	Closing Price, June 15, 1894.	Closing Price, June 8, 1894.	Par.	Latest Dividend.	Called up Per Share.	Shares Issued.	Situation of Mine.	Head Office.	Name.	Closing Price, June 15, 1894.	Closing Price, June 8, 1894.	Par.	Latest Dividend.	Called up Per Share.	Shares Issued.	Situation of Mine.	Head Office.
Joe's Luck.....G	1/8 2/8	1/9	1 0	—	—	57,404	De Kaap	11, Queen Vic.-st.	Orion.....G	—	—	1 0	10% May '94	—	30,000	Witwatersdrdt.	10, Basinghall-street
Johannesburg Par	3 3/4	3 3/4	1 0	12 1/2 Nov. '93	1 0	21,000	Witwatersdrdt.	Johannesburg.	Otto's Kopje.....D	1/8 2/-	2/-	1 0	—	—	47,888	Kimberley	113, Cannon-st., E.O.
Jubilee.....G	5 5/8	5 1/2	1 0	30% Apr. '94	1 0	30,000	Witwatersdrdt.	8, Old Jewry.	Paarl Central.....G	2/- 23/-	23/-	1 0	—	—	132,500	Transvaal	25-30, Hol Vld., E.O.
Jumpers.....G	4 1/4	4 1/4	1 0	10% Jan. '93	1 0	100,000	Witwatersdrdt.	28, Holborn Viaduct.	Plage Peak, New G	2/- 3/-	3/-	1 0	—	—	230,338	Swaziland	8, Queen-street-place
Kimberley.....D	9 1/4 5/8 pm	9 1/4 pm	1 0	—	—	98,672	Kimberley	19, Finsbury circus.	Princess Estate G	1/6 2/8	2/8	1 0	—	—	101,000	Potchefstroom	19, Bury-st., E.O.
Kimberley Rdpd.....G	7 1/8 5/8	7 1/8	1 0	—	—	125,000	Witwatersdrdt.	2, Drapers-gardens.	Randfontein.....G	16/- 17/-	18/-	1 0	—	—	72,046	Witwatersdrdt.	33, Cornhill, E.O.
Kleinfontein (N.G.)	1 1/8 1/8	1 1/8	1 0	—	—	150,000	Witwatersdrdt.	110, Cannon-street.	Read's Drift.....G	8 1/2 8 1/2	9	1 0	—	—	1,916,500	Witwatersdrdt.	59, Holborn Viaduct.
Klerksdorp.....G	1 1/8 1/8	1 1/8	1 0	—	—	150,007	Witwatersdrdt.	19, Bury-st., E.O.	Robinson.....G	9 1/2 10/-	10 1/8	1 0	—	—	332,798	Witwatersdrdt.	29-30, Holborn Via.
Knight.....G	1 1/8 1/8	1 1/8	1 0	—	—	250,000	Witwatersdrdt.	59, Holborn Viaduct.	Roodepoort Un. G	2 1/2 2 1/2	2 1/2	1 0	—	—	50,000	Transvaal	19, Finsbury circus.
Langlaagte Est. G	4 1/4 4 1/4	4 1/4	1 0	12 1/2 Mar. '94	1 0	487,000	Witwatersdrdt.	2, Drapers-gardens.	St. Augustine.....D	2 1/2 2 1/2	2 1/2	1 0	—	—	545,750	Witwatersdrdt.	59, Holborn Viaduct.
Do. Royal	2 1/2 2 1/2	2 1/2	1 0	5% Sept. '93	1 0	100,000	Witwatersdrdt.	110, Cannon-street.	Salisbury New G	3 1/2 3 1/2	3 1/2	1 0	—	—	100,000	Witwatersdrdt.	39-1, St. Swithin's-lane
Labon-Berlyn.....G	2 1/2 3/3	2 1/2	1 0	—	—	889,233	Witwatersdrdt.	Warnford-court.	Shels.....G	30/- 31/-	29/6	1 0	—	—	92,000	Witwatersdrdt.	1, Crosby-square.
Guipards Vle Est.	10/- 11/-	11/-	1 0	8% Mar. '90	1 0	319,000	Witwatersdrdt.	Warnford-court.	Shels.....G	2 1/2 3/3	3/8	1 0	—	—	614,450	Witwatersdrdt.	85, Gracechurch-st.
Do. do.	10/- 11/-	11/-	1 0	—	—	25,000	Witwatersdrdt.	8, Old Jewry.	Slati.....G	2 1/2 3/3	3/8	1 0	—	—	625,000	Witwatersdrdt.	4, Sun Court, E.O.
Main Reef (New) G	13 1/8 13 1/8	13 1/8	1 0	—	—	430,000	Witwatersdrdt.	4, Lothbury.	Simmer & Jack.....G	8 8 1/2	7 1/2	1 0	—	—	85,000	Witwatersdrdt.	33, Cornhill.
May Deep Level G	9 1/8 10/-	9 1/8	1 0	—	—	146,000	Witwatersdrdt.	33, Cornhill, E.O.	S.A. Gold Trust	15 1/8 15 1/8	17/-	1 0	—	—	220,000	Witwatersdrdt.	8, Old Jewry.
Metropolitan (N.G.)	12 1/8 15/-	15/-	1 0	—	—	75,000	Witwatersdrdt.	1, Crosby Square.	Spitzkop (New) G	4 1/2 4 1/2	3 1/2	1 0	—	—	144,531	Witwatersdrdt.	15, Bishopsgt.-st., Wt.
Meyer & Charl.....G	5 1/2 5 1/2	5 1/2	1 0	25% Dec. '93	1 0	71,687	Witwatersdrdt.	Warnford-court.	Stanhope.....G	1 1/2 2	2 1/2	1 0	—	—	34,000	Witwatersdrdt.	1, Crosby Square.
Modderfontein.....G	15 1/8 16 1/8	17 1/8	1 0	—	—	200,000	Witwatersdrdt.	Warnford-court.	Sutherland R.....G	4 1/2 4 1/2	4 1/2	1 0	—	—	220,000	Witwatersdrdt.	3, Budge-row, E.O.
Montrose.....G	—	—	1 0	3/- Feb. '90	1 0	70,000	De Kaap	65, New Broad-street.	Tentonia.....G	11 1/8 12 1/8	12 1/8	1 0	—	—	96,000	Witwatersdrdt.	8, Old Jewry.
Moodies G. & E.....G	9/- 10/-	9 1/8	1 0	—	—	120,000	De Kaap	8, Old Jewry.	Trans. Coal Trust	10/- 11/-	11/-	1 0	—	—	235,700	Transvaal	76, Old Broad-st., E.O.
Moodies G. & E.....G	4 1/8 5/-	5/-	1 0	—	—	120,000	De Kaap	8, Old Jewry.	Trans. Est. & Dev.	10/- 11/-	11/-	1 0	—	—	250,000	Transvaal	76, Old Broad-st., E.O.
Mozambique.....G	11 1/8 13 1/8	15/-	1 0	—	—	400,000	S. E. Africa	Broad-street House.	Trans. Gold	1 1/2 2	2	1 0	—	—	79,915	Transvaal	8, Old Jewry.
Namaqualand.....G	15 1/8 17 1/8	23 1/2	1 0	2 1/2 July '91	1 0	194,351	Namaqualand.	34, Leadenhall-bld.	Trans. Land.....G	5 1/8 6 1/8	6 1/8	1 0	—	—	169,999	Transvaal	33, Cornhill.
New China.....G	2 1/2 2 1/2	2 1/2	1 0	—	—	70,000	Lydenburg	8, Old Jewry, E.O.	Trans. Land.....G	1 1/2 2 1/2	2 1/2	1 0	—	—	36,000	Witwatersdrdt.	Johannesburg.
New Crown Estate	1 1 1 1/2	1 1/2	1 0	—	—	100,000	Lydenburg	29-30, Holborn-viad.	Treasury.....G	3 1/2 3 1/2	3 1/2	1 0	—	—	45,000	Transvaal	110, Cannon-street
New Oresund.....G	15 1/8 16 1/8	16 1/8	1 0	5% Aug. '92	1 0	195,000	Langlaagte	4, Bishopsgt.-st. Wt.	Un. Ivy Reef.....G	15/- 17 1/8	17 1/8	1 0	—	—	100,000	Witwatersdrdt.	23, St. Swithin's-lane
New Edwin Brav	2 1/2 3 1/8	3 1/8	7 0	—	—	65,000	De Kaap	23, College Hill.	Van Ryn.....G	10/- 12 1/8	12 1/8	1 0	—	—	92,810	Witwatersdrdt.	1, Crosby-square.
New Gordon.....G	3 1/8 4 1/8	5 1/8	1 0	5% Dec. '89	1 0	560,250	Griqualand	110, Cannon-street.	Victoria Hill.....G	—	—	1 0	—	—	109,000	De Kaap	Portland House, E.O.
New Jagers.....D	14 1/2 14 1/2	14 1/2	10 0	5% Mar. '94	10 0	100,000	Transvaal	5, Cophall-buildings	Village Main Reef	4 1/2 4 1/2	4 1/2	1 0	—	—	132,000	Witwatersdrdt.	8, Old Jewry.
New Louis D'Or.....G	5 1/8 6 1/8	6 1/8	1 0	—	—	100,000	Witwatersdrdt.	59, New Broad-street	Virginia (New) G	3 1/2 4 1/2	3 1/2	1 0	—	—	48,335	Transvaal	26, Budge-row, E.O.
New Primrose.....G	4 1/2 4 1/2	4 1/2	1 0	4/- July '93	1 0	230,000	Witwatersdrdt.	2, Drapers-gardens.	Wassau.....G	5 5 1/2	5 1/2	1 0	—	—	100,000	Witwatersdrdt.	85, Gracechurch-st.
New Primrose.....G	1 1/8 1 1/8	1 1/8	1 0	—	—	160,000	Witwatersdrdt.	Warnford-court, E.O.	Wemmer.....G	5 5 1/2	5 1/2	1 0	—	—	56,000	Witwatersdrdt.	19, Bury-st., E.O.
New Spes Bona.....G	8 1/2 10/-	10/-	1 0	—	—	113,801	Witwatersdrdt.	24, N. John-st., L'pl	Willoughby's.....G	16/- 17/-	17/-	1 0	—	—	250,000	Witwatersdrdt.	13, St. Swithin's-lane
Nigel.....G	2 1/2 2 1/2	2 1/2	1 0	10% Mar. '94	1 0	160,000	Witwatersdrdt.	1, Crosby-square.	Wolwater.....G	2 1/2 3 1/2	3 1/2	1 0	—	—	180,000	Witwatersdrdt.	13, St. Swithin's-lane
Northdeacht E. G	—	—	1 0	—	—	160,000	Lydenburg	8, Old Jewry.	Worcester.....G	2 1/2 3 1/2	3 1/2	1 0	—	—	152,835	Transvaal	5, Cornhill-buildings
Oceana.....G	1 1/4 1 1/4	2	1 0	25/- Nov. '89	1 0	150,000	Transvaal	4, Sun Court, E.O.	Zambia Explora.	2 1/2 2 1/2	2 1/2	1 0	—	—	90,727	Witwatersdrdt.	8, Old Jewry.
N. Ophir Concess.	—	—	1 0	—	—	111,857	E. Coast Africa	31, Lombard-street.				1 0	—	—	45,000	Transvaal	13, George-st., E.O.
Orange F.S.E.....D	3 1/2 4 1/2	4 1/2	1 0	—	—	254,000	Orange F. State	10, Moorgate-street.				1 0	—	—			

PROVINCIAL SHARE MARKETS.

THE CORNISH MINE SHARE MARKET.

MR. SAMUEL JOHN DAVEY, Dealer in Cornish Mine Shares, Redruth, Cornwall, reports under date of June 14 (4 o'clock) as follows:—We have had a very quiet market this week, without much change in prices. There is but very little doing to-day. Following are quotations:—Blue Hills, 14s. to 16s.; Carn Brea, 8 to 8 1/2; Cook's Kitchen, 1 1/2 to 1 3/4; Dolcoath, 7 1/2 to 7 3/4; East Pool, 9 1/2 to 9 3/4; Killifreth, 3 1/2 to 3 3/4; Polberro, 1 1/2 to 1 3/4; South Condurrow, 1 1/2 to 1 3/4; South Crofty, 1 1/2 to 2; South West Franches, 1 1/2 to 2; Tincroft, 1 1/2 to 1 3/4; West Franches, 2 to 2 1/2; West Kitty, 6 to 6 1/2; Wheel Agar, 1 1/2 to 2 1/2; Wheel Bassett, 2 to 2 1/2; Wheel Grenville, 16 1/2 to 17 1/2; Wheel Kitty (St. Agnes), 8s. to 10s.

MR. MICHAEL WILLIAMS BAWDEN, Mining and Assaying Offices, Liskeard, Cornwall, writes (June 14) as follows:—The mining market continues dull and inactive on the fluctuation of tin, and prices generally are easier, business mostly confined to the settlement. Phoenix United Mines meeting is to be held on the mine on Thursday next, when it is to be hoped that the new scheme will be fully explained and progress reported, with a free discussion being allowed. Closing prices:—Blue Hills, 14s. to 16s.; Botallack, 1 to 1 1/2; Carn Brea, 8 1/2 to 8 3/4; Cook's Kitchen, 1 1/2 to 1 3/4; Dolcoath, 7 1/2 to 7 3/4; Devon Consols, 1 1/2 to 1 3/4; Killifreth, 6s. to 6 1/2; Killifreth, 3 1/2 to 3 3/4; Phoenix United, 1 1/2 to 1 3/4; South Crofty, 1 1/2 to 2; South Franches, 1 1/2 to 2; Tincroft, 1 1/2 to 1 3/4; West Franches, 2 to 2 1/2; West Kitty, 6 to 6 1/2; Wheel Agar, 1 1/2 to 2; Wheel Bassett, 2 to 2 1/2; Wheel Grenville, 17 to 17 1/2; Wheel Kitty, 9s. to 10s.

MESSRS. ABBOTT AND WICKETT, Stock and Share Brokers, and Mining Share Dealers, Redruth, write under date of Thursday, June 14:—The market has been depressed all the week, and with a falling tin market most shares have been neglected. Quotations herewith (four o'clock), but in many instances they are nominal:—Blue Hills, 14s. to 16s.; Carn Brea, 8 to 8 1/2; Cook's Kitchen, 1 1/2 to 1 3/4; Dolcoath, 7 1/2 to 7 3/4; East Pool, 9 1/2 to 9 3/4; Killifreth, 6s. to 6 1/2; Killifreth, 3 1/2 to 3 3/4; Phoenix, 1s. to 3s.; Polberro, 1 1/2 to 1 3/4; South Condurrow, 1 1/2 to 1 3/4; South Crofty, 1 1/2 to 2; South Franches, 1 1/2 to 2; Tincroft, 1 1/2 to 1 3/4; West Franches, 2 to 2 1/2; West Kitty, 6 to 6 1/2; Wheel Agar, 1 1/2 to 2; Wheel Bassett, 2 to 2 1/2; Wheel Grenville, 17 to 17 1/2; Wheel Kitty, 9s. to 11s. Tin, 70.

MANCHESTER.

MESSRS. JOSEPH R. and W. P. BAINES, Stock and Share Brokers, Queen's Chambers, 7, Market-street, write, June 14, 1894 (noon):—Business generally has been meagre again during the past week, the fortnightly settlement engaging attention, and doubtless interfering during its progress with new dealing. Home rails are very generally lower, the only exception to the rule in the active list being Caledonian undivided, which are credited with rise of 1/2, although the deferred are 1/2 to 1/2 down. North British New Ordinary are only fractionally lower, and that after having had something of a rally. Amongst the declines Great Northern A are to the fore with fall of 2 1/2, Sheffield A are 1 1/2, Great Western 1 1/2, and Metropolitan District 1 down, besides a lot of others where the depreciation is in small fractions. Canadians are lower all round. Pacifics are 1 1/2, Trunk Guaranteed 1 1/2, First Preference 1/2, Second Preference 1/2, Third Preference 1/2 to 1/2, and Ordinary 1-16 to 1/2. Americans have seen-sawed a little, and numerically the changes are, whilst small, mostly on the upward side. On the adverse side the only changes outside small fractions are Norfolk Pref. 1/2 and New York Central 1/2 down. Consols have had a relapse from their recent continued rise, and are put 1/2 down on the week. Colonial Government Bonds, &c., show only declines, and these are in all cases 1/2 per cent. in New South Wales Subscribed, New Zealand Inscribed, Queensland Inscribed, and Victoria Railway Inscribed Stocks. The feature of the week in the matter of quotations is the number of quotations for Home Corporation Stocks, &c., which show alteration. With the exception of decline of 1/2 on Manchester Three per Cent. (redeemable 1941—owing possibly to recent events here)—all these changes are to better prices. Bristol Three and a Half per Cent. heads the list with rise of 3, and following them come Blackburn Four per Cent., 1; ditto Three and a Half per Cent., 1; Dewsbury Three and a Half per Cent., 1; Leeds Four per Cent., 1; Longton Three and Three Quarters per Cent., 1; Newcastle Three and a Half per Cent., 1; and Oldham Four per Cent., 1; Burnley Three and a half per Cent., 1/2 to 1; Hull Three and a half per Cent., 1/2; Birmingham Three and a half per Cent., 1/2 to 1; and Liverpool Three and a half per Cent., 1/2. Not for a long time has there been such a long list of actual alterations in this class of stock, though with fewer changes they have long been on the upward move. Foreigners show very few changes. They are as follows:—Higher: Argentine Six per Cent., 1 1/2; ditto, Five per Cent., 1; Portuguese Three per Cent., 1/2; Egyptian Unified, 1/2; and Italian Rente, 1/2. Lower: Spanish Four per Cent., 1; and Turkish Group IV., 1/2. The number of transactions from the shares of miscellaneous classes is in excess of last week, but reaches but a poor total, especially so if the markings in ship canal shares are left out of the calculation. With the exception named, the business is very straggling, repetitions in one concern being few and otherwise unimportant. In the several sections prices were changed show irregularity of movement for the most part, but here and there some distinctness is to be noticed.

BANKS.—Only a meagre business, and prices are altered as follows:—Higher: Preston Bank 1 to 2, Manchester and County 1/2, and Bank of Liverpool 1/2. Lower: Consolidated 1-16, Imperial of Persia 1/2, District 1/2, and Union of Manchester 1-16.

INSURANCE.—Herein also very few transactions are recorded, and

the variations in prices tell their own tale. Higher: Boiler and General 1/2, Ocean Marine 1/2, and Thames and Mersey 3-16. Lower: Royal 1/2, Liverpool and London and Globe 1/2, London and Lancashire 1/2, and Maritime 1-16.

COAL, IRON, &c.—Just a few straggling dealings in Bolckows and Ebbw Vales comprise the whole of the business reported. Earle's Shipbuilding are 1/2, Patent Nut and Bolts 1, Rhymney Iron 1s., and Tredegar A 1/2 higher. Bolckows ordinary, £12 paid, are 1-16, Dorman Longs 1/2, and Rd. Hornsby's 1/2 lower.

MINES.—With but few transactions here prices are again moved (where changed at all) in favour of buyers. De Beers are 1/2, Tinto 1/2, Oregum preference 1/2, ditto ordinary 3-16, Mysore 1/2, and Cape Copper 1-16 lower.

COTTON SPINNING, &c.—No improvement in this market. Perhaps there is some little more disposition to buy at same prices, but buyers' offers are so low that but little business results.

TELEGRAPHIC.—Eastern and Eastern Extension are both put 1/2 up. Western and Brazil ordinary are 1/2 ditto, preference 1/2, and Anglo-American deferred 1/2 lower.

BREWERY.—Allsops have done some chopping about, but with balance of rise on the ordinary of 2 1/2, whilst the preference are up 9. Oesters ordinary are decidedly better, quoting rise on the week of 1 1/2, and Farnham United are 1/2 on the same side. Guinness, on the other hand, are put down 3.

MISCELLANEOUS.—There are a fair number of advances, but they are all small in amount. Amongst declines the following are prominent: Imperial Continental Gas, 2; Suez Canal, 1 1/2. Chartered of South Africa are 2s. down. Manchester Ship Canals have fluctuated, but not very widely; on balance they show the preference issue unchanged and ordinary rather better—about 1/2 per share.

LATER (4 P.M.).—There has been a good demand all to-day for home rails, and they finish a little higher in nearly every case. Americans, after being firm at the opening, eased off a trifle. Ship Canals in fair demand.

SCOTCH MINING AND INDUSTRIAL COMPANIES SHARE MARKETS.

STIRLING.—MR. J. GRANT MACLEAN, Stockbroker and Ironbroker (June 7), writes:—During the past week there has been little business doing probably owing to the dull state of the metal markets, quieter trade reports, and the threatened miners' strike. The fortnightly settlement is now in progress, and the rates of continuation to new account, June 28, have been light.

In shares of coal, iron, and steel companies prices are generally lower. Bolckow Vaughan are at 10 1/2, Ebbw Vale 3 1/2, Fifeshire Main Collieries Preference 43s. 9d., Marbella 55s., Niddrie 37s. 6d., Rhymney 30s., Steel Company of Scotland 47s. 6d., Stewart and Clydesdale 8 1/2, Wilson's and Clyde 9 1/2, and Wigan Coal 9s.

In shares of copper concerns prices are also lower, owing to the drooping market for the metal. Tharvis have touched 89s. 9d., and Tinto 13 1/2. Arizona are at 6s. 3d., Cape 23s. 9d. to 26s. 3d.

In shares of gold and silver mines a fair amount of business has been done. Montana have been largely dealt in from 6s. 1 1/2 up to 9s. 9d., on the improving returns from the mine, and the prospect of dividends being resumed, held out at the meeting. Oregum have also been largely dealt in, but declined to 80s.; as the mine reports continue good, this fall is probably due to closing some account. African Gold Recovery Company advanced to 38s. on the favourable return for May, and shares being scarce, but are since easier. New Aurora West firmer on the announcement that they have cut the main reef, worth over 2 ounces per ton. The following dividends have been announced:—Mysore, 2s.; Crown Reef, 2s. per cent.; Tolima, 10s. per share; and Sheba 1s. per share. African Consolidated are at 3s. 3d., American Belle 2s., Broken Hill Proprietary, 53s.; Blue Spur, 1s. 3d.; Cassel, 20s. 6d.; Consolidated Gold Fields of South Africa, 46s.; Day Dawn, P.C. 3s. 9d.; Emma, 3d.; Flagstaff, 1s.; Gold Fields of Mysore, 23s. 6d.; Golden Gate C.T., 1s.; Kabonga 1s. 9d.; La Plata, 7 1/2d.; May Consolidated, 9s. 6d.; Mallina, 12s. 6d.; Mines Trust, 13s. 9d.; New Goston, 16s.; New Louis d'Or, 8s. 6d.; New Virginia Transvaal, 2s. 9d.; Orita, 2s. 9d.; Silver King, 3s. 9d.; Spitzkop, 3s. 3d.; South African Trust and Finance, 1s. 9d.; St. Augustine, 1s.; Tolima A 8 1/2; and West Argentine, 2s.

In shares of miscellaneous companies there is not much alteration to notice. Oil companies are generally easier. Broxborn 8 7-16, Lintithgow 16s., and Young's 19s. 6d. Nobel's Explosives are at 13, Roburite Explosives 25s., South Australian Petroleum 2s., and White Lead, 4s. 6d.

EDINBURGH.

MESSRS. THOMAS MILLER and SONS, Stock and Share Brokers, 69, Hanover-street, Edinburgh, report as follows under date of June 14:—The coal trade troubles have affected the market for railway stocks. Caledonian Deferred declined till the price reached to-day 42 1-16, from which it has again risen to 42 1/2, showing a fall of 5-16 on the week. North British has gone from 39 1/2 to 38 1/2. Bank stocks are now coming more freely to market. British Lichen have receded from 400 to 398, Royal from 247 1/2 to 242 1/2, Commercial from 70 1/2 to 70, National have risen from 340 1/2 to 342, Clydesdale from 20 1/2 to 21 1-16, Union from 21 1/2 to 21 11-16. Insurance shares quiet. City of Glasgow have improved from 10 9-16 to 11 1/2. Edinburgh Life from 49 1/2 to 49 1/2, National Guarantee from 67s. to 70s. Liverpool, London, and Globe have fallen from 45 to 44 13-16, Northern from 65 to 63 1/2, Scottish Union and National A from 84s. to 83s. 6d. Scottish American Mortgage have declined from 57s. 9d. to 56s. Rosewell Coal have fallen from 6 1/2 to 5, at which business has been done. Lintithgow Oil have gone from 19s. to 16s. Distillers 2s. 6d. up at 16. Coats 8s. 9d. lower at 17 1/2. Union Steamship of New Zealand 6s. 6d. lower at 7 1/2. The Scottish Assam Tea dividend has been announced at the rate of 6 per cent. for the year, but the shares remain unchanged at £7 0s. 6d.

JOINT-STOCK COMPANIES.

MINING IN CORNWALL

AND DEVON:
NOTES ON WESTERN MINING, EDITORIAL
AND OTHERWISE.

THE sensation of the week in Cornwall has been the announcement by Messrs. Harvey and Co., the well-known firm of engineers and ironfounders, Hayle, of their intention to close their factory as soon as the contracts on which they are now engaged have been completed. It has been broadly hinted for a long time that this branch of the extensive business which they carry on in the county, and indeed in all parts of the world, has been unremunerative, but few people were prepared for the extreme measure which the directors have been compelled to adopt. The Hayle Foundry is one of the oldest in the West of England, dating its existence from about 1770, and during by far the greater portion of this time has been a prosperous concern. The decline of copper mining had the effect of shutting up several similar establishments in the county, but Messrs. Harvey and Co. long survived that depression, and are only now compelled to close in consequence of the severe competition of the present day. The causes assigned for the decision are the altered circumstances under which business of this kind is carried on, the keener competition, the more stringent conditions of contracts, the extent to which the firm has been handicapped by the distance of their works from the coal and iron districts, and the yearly increasing difficulties which arise from labour disputes. By this decision about 550 men and boys will be thrown out of work in a short time, and the blow will be very severely felt in Hayle, of which the foundry has for many years been the mainstay.

MESSRS. HARVEY and Co. are very large shareholders in most of the Cornish mines, and by far the greater proportion of the machinery in Cornwall, and a considerable share of that in South African and South American mines, has been turned out of their workshops. They have been the principal makers of the world-famed Cornish pumps, and we believe that the pumps of this class, which are now at work at the Severn and Mersey tunnels, have been supplied by them. Perhaps the largest work ever undertaken by the firm was the drainage of the Haarlem Lake, in Holland. Messrs. Harvey and Co., in addition to their factory, carry on a large trading business, in which the largest portion of their capital is invested. This will still be carried on.

ON the share market there has been practically nothing doing, the decision of Messrs. Harvey and Co. to close their foundry having engrossed attention during the latter part of the week. There has been some enquiry for Dolcoath shares on the statement, which will be welcomed by everyone connected with the industry, that the choke in the engine shaft has been cleared, and that the engine is likely to go to work shortly. It must not be supposed, however, that Dolcoath is quite out of the wood, because it is impossible to say yet what damage, if any, has been caused in the bottom levels. The 425 and the 412 have been under water for several weeks, and this submergence may have brought about serious results. The timber work here, however, is of a very substantial nature, and, if anything could stand the presence of water this should be able to do. It is an open secret that the chances of a profit next time are very small indeed, and those who sold their dividends some weeks ago for 4s. will probably have no reason to regret their bargain.

DOLCOATH's neighbour, Cook's Kitchen, from the appearance of its balance-sheet last week, does not yet seem to have realised the good things which have for so many years been confidently prophesied. It is extraordinary how contented the shareholders appear to be to continue to pay heavy calls. On Friday a loss was shown on four months of no less than £2537, and a total balance against the mine of £3600. Notwithstanding this heavy balance the shareholders only made a call of 10s., which will realise, less discount, just £2290, over £200 less than the loss, so that the mistaken policy of again running up a substantial balance seems to have been resorted to. Instead of endeavouring by a little extra call to clear the books they appear to have been quite content to allow this amount to be still carried on, and even added to. Cornish shareholders do not appear to have gained much by experience. It is true the mine is looking pretty well; it generally has done, and the manager expressed a strong opinion, as he did last time, that the returns of tin would be increased in the coming quarter. It is only fair, however, to say that there is a reasonable prospect of things turning out in accordance with this forecast.

BLUE HILL continues to look very well, and the 80 end east is now officially valued at £30 per fathom, though it is understood that its actual value is in excess of this. They have driven through the lode for 5 fathoms, and have found a remarkably good bunch of tin, which they will soon be able to take away at a substantial profit. The cost of working at Blue Hills is only about £500 in four months, so that with a very moderate output they will be able to place the mine in a dividend paying state.

WEST FRANCES seems to be doing better, and the lode in the new shaft, which is being sunk below the 235, is valued at £30 per fathom for 12 feet long.

REPORTS FROM THE MINES.

We find it necessary to announce that, owing to the vast numbers of mining reports, and items of mining intelligence which reach us invariably very late—up to, and frequently after the time of going to press—it is impossible to guarantee the insertion of all of them in the issue in which, in ordinary course they should appear. We always endeavour, however, to make this important feature as complete as possible, and if the secretaries of mining companies, mining captains, and others would kindly make an effort to let their reports, etc., reach us early on Fridays, when it is not possible to let us have them earlier in the week, their doing so would go far to ensure their insertion, and to promote the completeness of our Mining Intelligence.

BRITISH MINES.

DEVON GREAT CONSOLS.—June 14. Monthly report: Wheal Anna Maria: Engine Shaft: In the stope in the 124 fathom level east there is a good lode, worth 10 tons of mundic per fathom. The lode in the stope in the bottom of the 110 fathom level east is producing 2 tons of copper ore and 6 tons of mundic per fathom.—Field Shaft: Main Lode. The stope in the back of the 130 fathom level west is yielding 9 tons of mundic ore per fathom.—Wheal Josiah: Richard's Shaft. In the stope in the bottom of the 103 fathom level east the lode will yield 10 tons of mundic ore per fathom.—Agnes Shaft. The lode in the stope in the back of the 103 fathom level west is producing 2 tons of copper ore and 2 tons of mundic per fathom. In the stope in the back of the 90 fathom level west the lode is producing 3 tons of copper and mundic ores per fathom.—Wheal Emma: Thomas's Shaft. In the stope in the bottom of the 100 fathom level east the lode is yielding 2 tons

of copper ore and 13 tons of mundic per fathom. In the stope in the bottom of the 100 fathom level east there is a good lode, worth 2 tons of copper ore and 18 tons of mundic per fathom. The lode in the stope in the back of the 100 fathom level east is yielding 2 tons of copper ore and 13 tons of mundic per fathom.—Inclined shaft. In the stope in the back of the 150 fathom level east the lode will yield 1 ton of copper ore and 6 tons of mundic per fathom. The lode in the stope in the back of the 150 fathom level east is producing 1 ton of copper ore and 6 tons of mundic per fathom. The stope in the back of the 112 fathom level west is producing 1½ tons of copper ore and 4 tons of mundic per fathom. The lode in the stope in the bottom of the 100 fathom level west is worth 5 tons of mundic ore per fathom.—New shaft, new south lode. The lode in the stope in the bottom of the 190 fathom level east is worth 7 tons of mundic ores per fathom. The stope in the back of the 130 fathom level east will yield 1½ tons of copper and 4 tons of mundic per fathom.—Watson's Engine Shaft. In the 172 fathom level east the lode is 4 feet wide, yielding 3 tons of copper and mundic ores per fathom. In the 160 fathom level east the lode is 4 feet wide, producing 1 ton of copper and mundic ores per fathom. In the new rise in the back of the 160 fathom level east, underneath Bawden's winze in the bottom of the 148, the lode is 4½ feet wide, yielding 4 tons of copper and mundic ores per fathom for length of rise—9 feet. In Bawden's winze sinking below the 148 fathom level east the lode is 5 feet wide, yielding 8 tons of copper and mundic ores per fathom. In the stope in the back of the 172 fathom level east the lode will produce 7 tons of copper and mundic ores per fathom. The stope in the back of the 160 fathom level east is worth 5 tons of copper and mundic ores per fathom. In the stope in the bottom of the 148 fathom level east the lode will yield 6 tons of copper and mundic ores per fathom. The stope in the back of the 136 fathom level west is yielding 4 tons of copper and mundic ores per fathom.—William Clemeo.

DRAKEWALLS.—J. Hosking and T. Chapman, June 13: During the past week steady progress was made in sinking the engine shaft below the 175 fathom level, 4 feet having been sunk. The 160 crosscut east of the engine shaft is now showing some stones of country rock, and it would therefore appear that we are getting near the north wall. There is no change in productiveness.

GREEN HURTH.—June 8: Ore in stock May 10, 95 tons 8 cwt. Ore raised for month 30 tons. Total, 125 tons 8 cwt. Ore delivered, deduct 25 tons 8 cwt. In stock, 100 tons.—South-West Branch Vein: During the past week we have had a decided improvement at the south forehead which is now worth for lead 3 tons per fathom. The heading in the back of this level is in poor ground, we have left this for the present and commenced a stope in the level sole, this is worth 1½ ton per fathom.—Annie's Vein: The south forehead is very poor, although a kindly looking vein, worth 10 cwt. per fathom. The heading in the back of this level is worth 2½ tons per fathom. The south driftage from the sump on Annie's vein is not so rich this week, worth 2 tons per fathom. 7 bins of ore have been delivered to the Nenthead Company this week. This completes their parcel. Total quantity delivered is 25 tons 8 cwt.—W. Grav.

LEADHILLS.—W. H. Paull, June 11: Brown's Vein: In the 160 fathom level driving south of Jeffrey's shaft the vein is 5 feet wide, of a strong masterly character, and contains a good mixture of ore, producing 15 cwt. per fathom. The vein in the 160 fathom level north of Wilson's shaft, is 4 feet wide, rather soft and too dark for the production of ore, although containing a good deal of spar. In No. 2 winze sinking below the 145, north of Wilson's shaft, the vein is 4 feet wide, worth at present 10 cwt. of lead ore per fathom. No further change in cross cutting eastwards at the 145 fathom level north of Jeffrey's shaft. The vein in No. 1 stope over the 145, north of Jeffrey's shaft, yields 35 cwt. of ore per fathom. In No. 2 stope over same level, north of ditto, the vein is yielding 25 cwt. of ore per fathom. The stope over the 130, north of Jeffrey's shaft, is now worth only 10 cwt. of ore per fathom, and unless an improvement takes place will be suspended in a few days. The vein in the 115 fathom level, driving north of Jeffrey's shaft, is 4½ feet wide, composed chiefly of stone and spar, with occasional spots of ore. No. 1 stope over the 115 fathom level, north of Jeffrey's shaft, will yield 20 cwt. of ore per fathom. No. 3 stope over same level is producing 20 cwt. of ore per fathom. No change of note in driving crosscut east at the 100 fathom level towards Raik vein, but ground a little easier for exploring. The vein in the 100 fathom level going south of Wilson's shaft is disordered by a cross joint, and now composed mostly of stone, too dark and soft in character for producing ore. The same level driving south of eastern part of vein has a kindly appearance, showing nice spar, and letting out a little water, with indications for an early improvement. The vein in No. 1 stope over drift above the 100 south of Wilson's shaft is worth 30 cwt. of ore per fathom. The stope over the 85 north of winze, and south of Wilson's shaft, is worked out, and men put to stope over drift above the 100, in a vein worth 40 cwt. of ore per fathom. No. 1 stope above the 85 south of Wilson's shaft is worth 60 cwt. of ore per fathom. No change to notify in crosscut going eastwards at the 70 south of Wilson's shaft. The vein in stope below the 35 south of flat rod shaft is producing 40 cwt. of ore per fathom.—Sarrowwoole Vein. Gripp's adit south of George's Roust vein being continued on a vein 4 feet wide of a promising character, showing a good mixture of spar and spots of ore.

SOUTH FRANCES UNITED.—June 12: Setting Report. The 285 fathom level to drive west of Pascoe's by six men and three boys with a boring machine at £7 10s. per fathom, lode producing tinstuff of low quality. We have commenced to rise against Daubus's shaft at the 245 fathom level west of Pascoe's by six men and three boys with a boring machine at £7 per fathom, lode worth £11 per fathom. The lode in the stope east of crosscourse has been disordered by a dropper coming in from the south side, consequently we have been blasting away ground west of crosscourse towards the heave, in order to prove if the tin makes above the dropper at this point, and we are pleased to say the lode has improved, and is now worth £20 per fathom. We have started to drive the 236 fathom level east of rise by six men and three boys with a boring machine at £7 per fathom, lode worth £12 per fathom. A stope in the back of the 226 west is worth £11 per fathom. Stopping by 12 men at 5s. per ton. A rise in back of this level by four men at £8 per fathom, lode worth £12 per fathom. Stope in back of the 144 west of Grenville's is worth £11 per fathom. Stopping by six men at 3s. 9d. per ton. Stope in back of the 134 west of Grenville's is worth £11 per fathom. Stopping by 14 men at 5s. per ton. The 124 fathom level to drive west of Grenville's by four men at £9 10s. per fathom, lode worth £12 per fathom. A winze sinking below this level by four men at £9 per fathom, lode worth £10 per fathom. A rise in the back of this level by four men at £9 per fathom, lode worth £12 per fathom. Stope in bottom of the 114 fathom level west of Grenville's is worth £10 per fathom. Stopping by eight men at 3s. 3d. per ton. Daubus's shaft to sink below the 120 fathom level to be carried 14 feet long and 7 feet wide, by 18 men at £30 per fathom. We have completed the putting in of penthouse, and are now preparing to put in bearers and cistern to fix plunger lift at this level. In our tribute department we have 60 pitches working by 158 men, on tributes varying from 9s. to 13s. 4d. in the £, the standard for tin being £42 per ton.—William Hooper, John Opie, Richard Williams, William Henry Richards.

WEARDALE LEAD.—Report on Weardale Company's mines for week ending June 9: Groverake. Adamson's drift west the vein continues rather mixed with plate rider, worth 14 cwt. per fathom. Groverake cubic fathom stope worth 16, 14, 12, 14, 12, 12, and 12 cwt. per fathom. The tribute men have raised 24½ bins of ore during the week.—Boltsburn. Crosscut south from Watt's level to prove flatts has broken into the flatts which looks promising for ore but not fairly proved yet. Stopes above Watt's level in vein and north and south flatts worth, 18, 20, 20, 34, 30, 32, 20, 26, 18, 26, 18 and 18 cwt. per fathom.—Greenlaws. Nattrass Gill drift stope worth 14 and 14 cwt. per fathom. Lee's sump stope worth 30 cwt. per fathom. The tribute men have raised 29 bins of ore during the week.—Sedling. The 64 level east has been driven 1 2-6 fathoms this week. Vein in plate straight and poor at present; improves above the level. Stopes above 64 level east and west worth 16, 14, 16, 16, 14, and 16 cwt.

per fathom. Stope in Stobb's drift south vein worth 14 cwt. per fathom. Driving east from shaft foot in the scar limestone vein is 4 feet wide, composed of fluor, quartz, rider, and a little ore. Ore raised for week 77 tons. Ore dressed for week 96 tons. Ore and slag smelted for week 155 tons, producing 83 tons of pig lead.

PRINCE OF WALES.—S. Roberts, J. Prowse, June 13: We very much regret to say we have not as yet made any discovery in the 193 crosscut, which is now extended 27 fathoms, the ground at present being very stiff, non-porous, and, as far as appearance can be regarded, congenial mineral-bearing killas.

WEST KITTY.—June 14: We have made good progress in changing our pitwork and repairing our engine, and hope to have the engine at work again to-morrow. We have a staff of men clearing and preparing for building engine house at Thomas's shaft. No change to notice in any of the points in operation since our last report.—(Signed) John Williams, Joel Hooper.

COLONIAL, INDIAN, AND FOREIGN MINES.

LA PLATA.—The following is the latest news from the manager of the Gold Fields of Mozambique (Limited):—Revue, I have secured 12 more claims here.—Chimene. Am still camped here and am of opinion that there are gold reefs here. Alluvial gold is found at the extreme western end of the valley, so that unless there has been a shower of gold, reefs must be found to exist.

NEW QUEEN.—The following fortnightly report has been received from the mine, dated Charters Towers, April 26: Underlie Shaft. The underlie shaft has been sunk a further depth of 15 feet, making a total depth of 64 feet from No. 5 plat; there is little change here to report. A little water is coming in, and the formation is of a more mellow nature.—No. 4 South Level. Stopping has been carried on over this level, the formation varying from 3 to 10 feet in width. The reef is very irregular, from 3 to 9 inches in thickness. An incline tramway has been fixed for a distance of 85 feet, which will save a lot of labour in removing the stuff to the No. 4 level.—No. 5 South Level. This level has been extended a further distance of 14 feet, making a distance of 242 feet from the underlie shaft. There is a little stone making in the end of level of a rubby nature. Stopping has also been carried on over this level, the formation varying from 4 to 8 feet in width with no defined reef, the formation being mixed with leaders from 1 to 3 inches. No. 5 north level has been extended a further distance of 15 feet, making a total of 162 feet from underlie shaft; the formation is about 1 foot in width, with no stone. The ground here looks very barren. No. 4 formation, No. 1 level north, has been advanced a further distance of 15 feet, making a total from end of cross cut 232 feet, with no change since last report. Stopping has also been carried on over this level; the reef is irregular, varying from 3 to 6 inches, with occasional bunches running through the formation. No. 1 level south has been extended a further distance of 12 feet, making 43 feet from end of cross cut, with about 6 inches of stone in the face.—Quantity of stuff raised during the fortnight. Quartz: No. 1 A level, 18 inches; No. 4 south level, 103 trucks; No. 5 south level, 181 trucks; No. 4 formation, 93 trucks; approximate weight 270 tons=395 trucks.—(Signed) W. Henderson.

SALISBURY GOLD.—The manager reports on the workings for the month of April as follows: Total number of feet driven, sunk, and risen, 204, made up as under: Main incline shaft, advanced 37 feet; total, 665. Main shaft, No. 7 station, advanced 27 feet; total, 27 feet. South reef, fourth level, rise 2 east, advanced 12 feet; total, 12 feet. South reef, fourth level, rise 2 west advanced 18 feet; total, 18 feet. South reef, sixth level, drive east, advanced 2 feet; total, 257 feet. South reef, sixth level, winze 1 east, advanced 24 feet; total, 45 feet. South reef, sixth level, drive west, advanced 25 feet; total, 198 feet. South reef, sixth level, winze 1 west, advanced 26 feet; total, 72 feet. Main reef leader, third level, rise 1 east, advanced 11 feet; total, 11 feet. Main reef leader, fifth level, winze 1 east, advanced 22 feet; total, 58 feet.—Milling. The mill ran 28 days 21 hours; ore milled, 2100 tons. Gold extracted from the battery, 1036 ounces 9 dwts.; gold extracted from the cyanide works, 443 ounces 13 dwts.; total, 1480 ounces 2 dwts.; value, £4866 5s. 2d. Total working expenses per ton, including redemption, £1 7s. 7d.; value of yield per ton, 16s. 3d.; expenditure on revenue account, £4190 16s. 7d.; profit for the month, £675 9s. 7d.

SHEBA.—The following report has been received from the general manager for the month of April: Mine. No. 3 Level. No. 26 winze sunk 8 feet and connected with back stope from No. 4 level, near Edwin Bray block, in good milling ore.—No. 4 Level. The west stope seems narrowing as it approaches No. 3 level; the ore is still good.—No. 5 Level. Fitting up track, &c., preparatory to extending No. 5 into the Edwin Bray block.—No. 6 Level. We are still stopping in the east end of this level in good ore; the ore body seems inclined to pinch.—No. 7 Level. This level has been extended west 17 feet in low grade ore. No. 3 north crosscut driven 15 feet the fore part of the month in good ore, but the latter part of the month in low grade. No. 8 Level. This has been extended west 14 feet in good ore. During the last week in the month considerable visible gold was seen. No. 2 north crosscut driven 16 feet in poor ground.—No. 9 Level. The west end extended 29 feet, and the east end 24 feet; both ends being in good ore during the month, especially during the last week when visible gold was to be seen daily. This level has now been in good milling ore for 90 feet.—Low Level Tunnel. The three ends of this tunnel have been extended 41 feet 6 inches, 29 feet 6 inches, and 45 feet respectively, a total of 116 feet, the tunnel being now in 672 feet 6 inches.—Annie's Fortune Block. During the month this block has been opened up a view to obtaining enough ore from it to enable us to make a milling test of it. 1000 tons were broken and run down into the large underhand stope in the Sheba block, mostly surface dirt and capping of the reef. Two ore bins and an aerial tram were constructed, and all preparations made to enable us to commence crushing at an early date. As far as we have opened up the ore looks fairly good, visible gold being occasionally found.—New Work. The ground tram extension is nearing completion. The repairs to the various bridges are being pushed forward as quickly as possible. The Fever Creek has been turned in two places so as to reclaim some low ground for us as tailings reservoirs. Two canals have been cut to accommodate the water. A canal is also in course of construction to carry the water from Snijman's Creek. A dam is being erected near the proposed new battery site to conserve water for the new mill. The 60 stamp Frazer and Chalmers mill at the Oriental battery is being dismantled preparatory to removing it to the battery site at the mine. A survey has been made of the route by which the electrical cable will be laid from Avoca to the mine. Preparations are now being made to start repairing the Oriental dam as soon as the weather is settled. All work in connection with the erection of the battery at the mine is being pushed forward as much as possible.

SPITZKOP FARM.—Report for week ending 12th May: 10 stamper mill is now completed, and will commence crushing on Monday next. Have tried the new cams which work satisfactorily.—Reef Hill: Getting out and hauling ore from an old tail race near the mill, as usual.—Hydraulic: Two monitors worked five days and a half of 10½ hours each day during the week. Will commence to take out the bottom wash in the gutter next week. In a letter received from the manager dated 15th May, he says: "I have no reason to doubt that the hydraulic clean up will be otherwise than satisfactory. I shall be greatly deceived if it is not so. The indications could not be better in my opinion."

UNITED GOLD FIELDS OF MANICA.—Report of work done at the mine for the four weeks ending April 21: No. 1 Adit. Distance driven 16 feet, total length 516 feet. Very hard and tough schist.—No. 2 Adit. Distance driven 48 feet, total length 630 feet. Hard schist with joints, blasts well, six sets of timber put in.—Adit No. 3. Small run occurred, now repaired.

GOLD IN MATABELLELAND.—Ancient ruins similar to those at Zimbabwe have been discovered in the south-east of Matabelleland, near Dhlodhlo. Pieces of pottery, silver, and copper utensils, and gold ornaments have been found, together with a number of gold nuggets, which are regarded as proving the existence of rich gold fields in the vicinity.

ALAMILLOS.—Mine report, dated June 6: In the 160 fathom level driving west of Taylor's engine shaft the lode is large and turns out good stones of lead ore. The 85 west of the same shaft is being driven on the south lode and is opening out good stopping ground valued at 1 ton per fathom. The lode in the 100 fathom level west of Judd's engine shaft, worth 1 ton per fathom, continues regular and compact. In the 100 east of the same shaft on the south lode the lode is small, but has a kindly appearance. Miguel's winze sinking below the 20 fathom level valued at 2 tons per fathom. This winze is situated west of San Agueda's shaft and in advance of the 40 fathom level. The stopes continue to yield well. The works at surface are kept on very regularly, and the machinery is in good working order. Estimated raisings for June 300 tons. The tributers returned 354 tons of mineral in the past month.

AUSTRALASIAN MINING.—Fortnightly report of Mr. John James, manager, dated April 26: In the underhand stope going north on the Orient reef the crushing stuff keeps about the same and shows a little gold. In the stopes over the level going south the crushing stuff is getting less but shows a little gold. In the stopes above the 690 feet level the crushing stuff is getting less and harder to get. But it shows a little gold. For the four weeks ending April 24 there were 410 tons of stone raised and crushed for a return of 182 ounces 8 dwts. of smelted gold. The average is poorer than the last crushing per ton. Everything about the mine and winding engine is in fair working order. There are 30 men employed.

BECHUANALAND EXPLORATION.—The following cablegram from Mr. Vigers, the Mining Commissioner of the British South Africa Company, to the board of that company has been communicated to the directors of the Bechuanaland Exploration Company (Limited):—Reports coming in from different districts are most favourable, especially the Sebakwe, Bembesi, and Balingwe. The Bechuanaland Exploration Company have several properties, the ore of which pans extraordinary well. They are situated at or near Sebakwe River, and, besides being wide and well defined, have an abundance of timber and water, and being on the top of steep mountains, can be cheaply worked by additional levels.—The general superintendent of the company reports under date of 11th May last as follows:—The following is a full report of what I saw on my recent trip: Fome Reef: 40 claims, situated parallel to and east of the Willoughby Syndicate's bonor. The bonor is a very large body covered with old workings, and consists of 90 claims. Some of the rock I broke off the reef carried free visible gold. On the Home Reef we have three shafts. No. 1 shaft down 18 feet, carrying good gold. No. 2 shaft down 40 feet, reef at the bottom of shaft 5 feet wide. No. 3 shaft down 30 feet, reef at the bottom 4 feet wide. In No. 2 shaft the reef carries free visible gold, but in No. 3 shaft it panned poorly. In a large body like this, however, we can hardly expect the reef to pan evenly all over. On this reef we could get from 600 to 800 tons of back, and by putting in a drive at the bottom of the creek where the reef outcrops, payable work would be immediately begun.—Minor reef: 10 claims. Shaft down 30 feet, reef 2 feet 6 inches wide. Pans well.—Chimborazo: 20 claims. Two shafts sunk. No. 1 shaft down 20 feet. This shaft was started to cut the reef at 60 feet, but at 20 feet we struck hard blue rock, and having no dynamite had to stop. No. 2 shaft down 30 feet, reef about 3 feet wide, carrying free gold and pans extremely well. This is another property on which I should strongly recommend development work being done. A drive could be put in at the foot of the mountain to work payable ground. I should advise the 20 feet shaft to be sunk 60 or 80 feet, and also the 30 feet shaft.

BRILLIANT BLOCK.—Mining managers' report for fortnight ending 18th April: Underlie shaft: Sunk 10 feet (during the fortnight); present bottom 58 feet below No. 5 plat. Reef in the sink is 4 feet thick, of medium quality.—No. 5 level west: Driven 23 feet. Total from shaft 140 feet. No change since last report.—Stopes: Reef 1 to 4 feet thick of fair quality, for about 50 feet from shaft.—No. 5 level east: Driven 24 feet. Total from shaft 134 feet. Reef in face 2 feet 6 inches of fair quality. The three stopes show a reef from 6 inches to 4 feet of fair quality.—No. 4 level west: Reef in stope near western boundary is 3 feet of low quality. Two stopes from the No. 2 winze have 2 feet of stone of medium quality.—No. 4 level east: No. 1 winze deepened 23 feet. Total depth 60 feet. The reef in the bottom is 4 feet thick of good quality. Stopes turn out usual quantity of good stone, averaging 18 inches thick throughout.—No. 3 level east: Two stopes with 2 feet of stone of low quality.—Yield: About 720 tons of quartz.—Stone crushed: 783 tons for 1214 ounces 1 dwt.

CHIAPAS.—Mining report for fortnight ending May 15th: Owing to the prolonged dry season and consequent stoppage of the mill, we have taken the opportunity to draw on our miners to finish the rockwork in grading out for the pipe line; the heaviest portion of which I am happy to inform you is completed. The piping being now on the road up, rivetting will at once be commenced on its arrival, and the pipe put into position as this work proceeds. When once this line is completed, we shall have ample power to push ahead development work in the mine below surface, and in future dry seasons sufficient power to run the mills. Providencia No. 3 west drift driven 1 foot 6 inches, total length 46 feet. Stripped down corner preparatory to driving on course of ore.—Aver drift. Driven 6 feet 6 inches on run of ore. Assays 2 dwts. 11 grains gold, 8 ounces 15 dwts. 2 grains silver, 2.03 per cent. copper, and 4 dwts. gold, 5 ounces 12 dwts. silver, 1.19 per cent. copper. Providencia No. 1 west drift driven 13 feet, total 26 feet. Cut ore body, but poor in quality. Santa Fe drift driven 6 feet, total 67 feet. Assays 14 dwts. 12 grains gold, 9 ounces 7 dwts. 12 grains silver, 6.4 per cent. copper, and 12 dwts. gold, 8 ounces 8 dwts. silver, 6.76 per cent. copper. Poorer in appearance than formerly. Taylor's No. 3 winze sunk 8 feet, total 63 feet, showing spots of ore in bottom. Providencia South Hill prospecting drift driven 22 feet, total length 69 feet; running in general direction of the ore. Intend to cross cut when in more solid ground. Timbering at present. Taylor No. 3 stopes assays 17 dwts. 12 grains gold, 10 ounces 3 dwts. 12 grains silver, 6.67 per cent. copper, and 1 ounce 1 dwt. 12 grains gold, 12 ounces 10 dwts. 3 grains silver, 5.13 per cent. copper. Face approaching cliff. Taylor No. 2 stopes assays 6 dwts. gold, 5 ounces 16 dwts. silver, 3.36 per cent. copper, and 7 dwts. 12 grains gold, 5 ounces 19 dwts. 12 grains silver, 3.16 per cent. copper. Old Providencia assays 1 ounce 1 dwt. gold, 10 ounces 11 dwts. silver, 8.59 per cent. copper. No ore run from stopes to mill; breaking ore in all but Santa Fe.—(Signed) Edward T. McCarthy.

COROMANDEL.—Superintendent's report for fortnight ending 19th May: Coromandel shaft 320 feet level north. Since last report this level has been driven 12 feet on a lode averaging 15 inches wide, and worth 10 dwts. of gold per ton. The 420 feet level north has been driven 23 feet 9 inches, total 154 feet 7 inches. There is a little quartz in the end, but not sufficient to value.—420 feet level south. This end is still very hard and barren. During the fortnight we have driven 9 feet, its distance from cross cut being 79 feet.—Prospect shaft. The 500 feet level north has been driven 12 feet from shaft, and a cross cut started to drive east. We expect to cut the old lode in about 20 feet drive. We are now engaged in sinking the shaft below the level for sump and plat. On the completion of this work the machine will be started on an exploratory crosscut west. 500 feet level south of winze driven 14 feet 1 inch, total 70 feet 3 inches. Lode in end very small and poor.—440 feet cross cut north east. This has been extended a further 15 feet and suspended. Nothing more of value has been discovered, and we have brought this machine back to the lode first intersected in this cross cut, and commenced to sink a winze. This will be known as No. 2 winze under 440 feet north. Four feet have been sunk to date, and the lode is 2 feet wide, worth by assay 1 ounce 10 dwts. per ton.—North Trial shaft. The drift south at 30 feet has been extended a further 60 feet and suspended. The quartz has been about 2 inches wide throughout, and worth from 4 to 8 dwts. of gold per ton.

GRAVEN'S CALEDONIA.—The following fortnightly report has been received from the mine, dated Charters Towers, April 26: In the underhand stope from No. 9 level the reef still averages 10 inches, and appears to be a good block of ground. The reef is equal to any of the other stone in the mine. No. 9 level has been extended a further distance of 9 feet, making a total of 216 feet from the slide. The reef in this drive is about 10 inches. In the first two

stopes it will average 8 inches, but will average fully 9 inches of good stone in the other 3 stopes. No. 8 level has been extended a further distance of 4 feet by the contractors, making a total of 318 feet from the slide, and this completed their contract of 52 feet. The reef in this level is about 7 inches thick. In the first 3 stopes over the level the reef is also about 7 inches, but will average about 9 inches in the other 3 stopes. The reef in the 2 stopes which we are working over No. 7 level is about 6 inches thick. No. 6 level has been extended a further distance of 6 feet, which makes a total of 345 feet from the slide. The reef in this level is about 6 inches thick. The reef in the 2 stopes over the level is about 7 inches thick. I put a drive through from the stopes started over No. 6 level into the old stopes, a distance of 10 feet, causing a better ventilation and opening up more ground. The men who were engaged in the crosscut in No. 4 level are now in the No. 5 stopes east, driving a rise to meet the crosscut, they have driven 13 feet for the fortnight. The estimated haulage for the fortnight is 123 tons of quartz, making a total of 146 tons in the paddock.—(Signed) G. Cabassi.

BAYLEY'S REWARD.—Mining report dated 21st April: Sylvester shaft has been sunk a further depth of 5 feet, full depth now being 16 feet below the 220 feet chamber. The lode is now making its appearance in the west end of the shaft; apparently very strong formation, similar to the south drive above. South drive 220 feet level has been advanced 14 feet, total being 32 feet from shaft. At 25 feet a fault or slide was met with, which apparently has thrown the lode to the east, in which direction we are now driving, and should again intercept the lode shortly, continuing its usual course. I might mention that this fault can be plainly seen at the 100 feet level, where the lode has been displaced in the same direction. Consequently I anticipate no difficulty in cutting it again.—Winze 100 feet level. The progress here made during the week has been rather slow, partly in consequence of being hard and opening out on the footwall to enable us to carry the full width of the lode, which is at present from 5 to 6 feet wide, doubtless good battery stone, but I think as we continue we should at any time strike the continuation of the rich stone being worked above. Stopes 100 feet are yielding very rich stone indeed, and from present appearances will continue to do so. Winze 50 feet level (Gordon shaft) sunk 7 feet, total 23 feet. Lode from 4 to 5 feet wide, very much improved in appearance, the last few feet being similar to the lode, which is yielding such rich stone in the stopes above. Stopes 50 feet level also looking well yielding stone of very high grade.—Everard shaft. South drive has been driven 14 feet, lode being from 5 to 6 feet wide, and of the same character as that from which the rich stone was formerly obtained. Corkshott shaft has been sunk 4 feet, total 31 feet. No particular change to report.—Begelholme shaft. Work during the week has been resumed in this shaft, and during the last two days yielded very rich stone, which still continues.—Machinery. The completion of the first 10 head battery is being finished, together with the buildings, as rapidly as possible. A large portion of the second battery has been brought on the mine, and its erection I hope to shortly commence.—Week's Run. Crushing the same as last week has been continued with two stampers when water could be obtained with the result of 500 ounces retorted gold.—Gold Forwarded. On the 18th, 1810 ounces 10 dwts. of smelted gold, and three boxes of specimens, estimated to contain 400 ounces, was forwarded by escort. M. A. Matthews, manager, telegrams to Melbourne office, May 2nd:—Sylvester shaft, total 239 feet. Lode in bottom strong, and showing gold, coarse gold freely. South drive passed through fault. Cut lode strong and well defined. All stopes looking well, and yielding stone high value. Everard shaft struck gold in south drive to-day 50 feet level. Week's run 500 ounces, 1003 ounces gold dispatched 28th. May 4th Sylvester's shaft 22 feet continued west beyond lode cut last week. Have struck water, fully 10,000 or 12,000 gallons per day. From water indication believe main body stone still further west.—Mr. H. Matthews, manager.

CHAMPION REEF.—Fortnightly report of Captain James Rowe, superintendent, dated May 21: Dalyell's Shaft: The 685 feet level south of shaft has been driven 7 feet 6 inches, total length 78 feet. Lode small and unproductive. This is suspended. 685 feet level north driven 36 feet, total length 36 feet. Lode 2 feet wide, assaying 1 ounce 3 dwts. 14 grains of gold per ton.—Garland's Shaft. This has been sunk in the dyke 12 feet, total depth 669 feet 3 inches. The 530 feet level north of west crosscut driven 27 feet 6 inches, total length 441 feet 9 inches. Lode 1½ foot wide, assaying 2 ounces of gold per ton. No. 4 new rise in back of level 100 feet north of No. 3 rise risen 7 feet 6 inches, total height 7 feet 6 inches. Lode 6 inches wide, assaying 1 ounce 13 dwts. of gold per ton. Winze below 530 south of west crosscut sunk 22 feet, total depth 54 feet. Lode 2 feet wide, assaying 1 ounce 14 dwts. 15 grains of gold per ton. The 440 feet level north of west crosscut driven 24 feet 6 inches, total length 408 feet 6 inches. Lode 2½ feet wide, assaying 1 ounce 18 dwts. 15 grains of gold per ton. No. 2 rise in back of level risen 14 feet 6 inches, total height 48 feet 3 inches. Lode 4½ feet wide, assaying 1 ounce 13 dwts. 13 grains of gold per ton. Rise in back of 440 south of west crosscut risen 11 feet 6 inches, total height 78 feet. Lode 2½ feet wide, assaying 2 ounces 3 dwts. 12 grains of gold per ton. The 340 feet level south of west crosscut driven 26 feet, total length 150 feet 9 inches. This is back to the dyke and suspended. New winze below level close to the dyke sunk 4 feet 9 inches. Lode 1½ foot wide, assaying 1 ounce 10 dwts. of gold per ton. Rise in back of level risen 21 feet 6 inches, total height 40 feet 6 inches. Lode 3½ feet wide, assaying 1 ounce 3 dwts. 14 grains of gold per ton. No. 2 winze below 340 north of west crosscut sunk 12 feet, total depth 77 feet. Lode 3 feet wide, assaying 1 ounce 12 dwts. of gold per ton. No. 1 rise in back of 240 north of west crosscut risen 7 feet 3 inches, total height 35 feet 2 inches. Lode 2 feet wide assaying 2 ounces 4 dwts. of gold per ton.—Ribblesdale's Shaft. This has been sunk 12 feet 9 inches, total depth 521 feet 9 inches. Lode 6 inches wide assaying 2 ounces of gold per ton. The 440 feet level south driven 1 foot 6 inches, total height 269 feet 2 inches. Lode very small and without value. Crosscut west from end driven 16 feet 9 inches. Not having met with anything, this is suspended, and we are now crosscutting east to prove if there is any other part of the lode standing in that direction. The 440 feet level north of winze sunk below 340 north on south part of fold, has been driven 30 feet 3 inches, total length 122 feet 3 inches. Lode 1 foot 6 inches wide assaying 1 ounce 18 dwts. 20 grains of gold per ton. The 340 feet level south of shaft driven 21 feet 3 inches, total length 621 feet 8 inches. Lode 1 foot 6 inches wide assaying 2 ounces 16 dwts. 12 grains of gold per ton. Winze below level sunk 17 feet 6 inches, total depth 59 feet 6 inches. Lode 9 inches wide assaying 1 ounce 18 dwts. 20 grains of gold per ton. Rise in back of level risen 12 feet 3 inches, total height 36 feet 6 inches. Lode 6 inches wide assaying 1 ounce 17 dwts. 15 grains of gold per ton. No. 1 rise in back of 240 south of shaft risen 7 feet, total height 35 feet 6 inches. Lode 1 foot 9 inches wide assaying 1 ounce 10 dwts. 13 grains of gold per ton. Rise in back of 240 crosscut east of shaft risen 12 feet 9 inches, total height 24 feet. This is communicated with stope in bottom of 200 north.—Carmichael's Shaft. Rise in back of 315 feet level north risen 12 feet 3 inches, total height 23 feet 3 inches. Lode 3 feet wide assaying 1 ounce 6 dwts. of gold per ton. We have resumed the driving of the 315 crosscut west of shaft which has been driven 4 feet, total length 299 feet 6 inches.—Howe's Shaft. This has been sunk 2 feet, total depth below 315 level 6 feet. Lode 2 feet wide, assaying 3 ounces 6 dwts. of gold per ton. The 315 north of shaft driven 24 feet 6 inches, total length 32 feet 6 inches. Lode smaller, is now 1 foot wide, assaying 2 ounces 6 dwts. of gold per ton.—Stopes. These throughout the mine are yielding their usual quantities of quartz.—New 30 head mill. This was started yesterday. We have almost completed the erection of the other 20 heads, and hope to have them at work in a few days. This will then bring the stamping power up to 80 heads.—New Compressor. This was started on the 14th instant, and is working satisfactorily. We shall now be able to increase our rock drilling power.

FORTUNA.—Mining report, dated June 6: Canada Incoosa Mine In the 150 fathom level driving west of O'Shea's engine shaft, worth 1 ton per fathom, the lode turns out some good lumps of lead ore. The lode in the 110 west of San Pedro's shaft has fallen off in value during the past few days.—Los Salidos mine. The 200 east of

Taylor's engine shaft, valued at 2½ tons per fathom continues to lay open good stopping ground. In the 105 east of Palgrave's shaft worth 1 ton per fathom, the lode continues regular and compact. The stopes have undergone no change of importance since last reported. Surface works are kept on very regularly, and the machinery is in good working condition. Estimated raisings for June 300 tons. The tributers returned 78 tons of ore in the past month.

GOLD FIELDS OF MYSORE.—Mine report for fortnight ending 21st May: South shaft. The 470 north has been extended 3 feet 6 inches, total length 85 feet 6 inches. Lode 2½ feet wide, assaying 1 ounce 18 dwts. of gold per ton. 470 south extended 5 feet 6 inches, total length 91 feet. Lode 2 feet wide, assaying 1 ounce 7 dwts. 15 grains of gold per ton. The 380 feet level north has been extended 5 feet, total length 190 feet 4 inches. Lode 1½ foot wide, assaying 1 ounce 7 dwts. per ton. 380 south extended 5 feet 6 inches, total length 179 feet 9 inches. Lode 4 feet wide, assaying 1 ounce 15 dwts. of gold per ton. The 280 cross cut east of shaft has been extended 5 feet, total length 231 feet 3 inches. There is no change in the strata, which is rather hard and spare for driving.—Prospecting Work. This is being pushed ahead, and I am sending a report on this department by this mail.

GOLD FIELDS OF MYSORE.—Fortnightly report on prospecting operations, dated May 22: West Balaghat Block, No. 1 Shaft. North drive at the bottom of this shaft has been driven 7 feet 3 inches, total distance from shaft 44 feet 6 inches. Lode in the end 2 feet wide assaying 1 ounce 5 dwts. 6 grains of gold per ton. South drive has been driven 5 feet, total distance from shaft 59 feet 6 inches. Lode in the end 1 foot 4 inches wide assaying 1 ounce 10 dwts. 14 grains of gold per ton. No. 2 shaft has been sunk 3 feet, total depth 126 feet 4 inches. Lode in the bottom 2 feet wide assaying 1 ounce 4 dwts. 16 grains of gold per ton. North drive 100 feet from surface has been driven 2 feet, total distance from shaft 60 feet. Lode in the end 2 feet 4 inches wide assaying 1 ounce 16 dwts. 6 grains of gold per ton. South drive has been driven 2 feet 9 inches, total distance 72 feet 3 inches. Lode in the end 1 foot wide assaying 2 ounces 3 dwts. 9 grains of gold per ton.—No. 2 Shaft. North drive at the bottom of this shaft has been driven 2 feet, total distance from shaft 29 feet. Lode in the end 2 feet wide assaying 1 ounce 10 dwts. 5 grains of gold per ton. South drive has been driven 10 feet 2 inches, total distance from shaft 67 feet 6 inches. Lode in the end 8 inches wide assaying 1 ounce 10 dwts. 13 grains of gold per ton. No. 4 shaft has been sunk 2 feet 6 inches, total depth 121 feet 6 inches. Lode in the bottom 1 foot 6 inches wide assaying 2 ounces 10 dwts. 20 grains of gold per ton.—Road Block. Shaft No. 3, north No. 2 has been sunk 2 feet, total depth 51 feet. Lode in the bottom 2 feet 3 inches wide assaying 12 dwts. 17 grains of gold per ton. 200 feet north of the above a trench has been made 70 feet long, 7 feet deep, 3 feet wide. No vein discovered.

KEMPINKOTE.—Superintendent's report for fortnight ending May 21: Garland's Shaft has been sunk 6 feet, making a total depth of 192 feet. Progress in sinking has been hindered by the 183 feet east crosscut which was started on the 7th instant, and has been driven 22 feet 6 inches. Henty's shaft has been sunk 6 feet 9 inches, making a total depth of 197 feet 9 inches. There is no change to report. The rock is still very hard. 173 feet south drive has been advanced 19 feet, making a total length of 35 feet from the crosscut.

LINARES.—Mine report, dated 6th June: Pozo Ancho Mine: Peill's Engine Shaft: The 200 fathom level driving west, worth 2 tons per fathom, is opening up a good length of stopping ground. The lode in the 155 west is small, consisting chiefly of carbonate of lime, and yielding a little ore. In the 178 west of Warner's crosscut the lode is large and strong, but does not contain sufficient ore to value.—No. 276 winze, sinking below the 178 fathoms level. This winze is going down speedily. The lode turns out some stones of ore. The stopes continue to yield well. Surface works are kept on very regularly, and the machinery is in good working order. Estimated raisings for June 250 tons. The tributers returned 123½ tons of ore in the past month.—Quintones Mine: Taylor's Engine Shaft: The lode in the 185 east is disturbed by small crosscours. In the 165 east the lode chiefly consists of spar, and contains but little ore. The lode in the 150 east, worth 1 ton per fathom, continues very wide, and contains some good lumps of ore. In the 130 east the lode is small and unproductive. Gini's winze sinking below the 150, valued at 1½ tons per fathom. This winze is situated east of Taylor's engine shaft, and in advance of the 165 fathom level. Estimated raisings for June 150 tons. The tributers returned 46 tons of ore in the past month.

MOUNT LYELL.—The London Committee have received the following report from the Melbourne board, viz., for the week ending April 25: Engine Shaft 100 Feet Level. The western crosscut has been driven 3 feet, total 60 feet. Still in pyrites.—50 Feet Level. The south drive has been advanced 6 feet, total 97 feet from the shaft. The ironstone has given place to conglomerate, with quartz veins slightly mineralised running through it. The stopes on the orebody north of the shaft are being worked as usual, and continue to turn out rich ore.—No. 2 Shaft 100 Feet Level. The western crosscut has been driven 6 feet, total 34 feet. The rock is getting much harder as the crosscut nears the pyrites.—No. 5 Tunnel. The contractors have driven 21 feet for the week, total 338 feet. The face is in easy driving ground.—Ore Raised. 122 bags of ore weighing 6 tons 3 cwt., and containing 10,036 ounces of silver and 1 ton 18 cwt. 1 qr. of copper, or an average of 1636 ounces of silver per ton, and 2790 of copper have been raised, bagged and sampled.—Ore Despatched. 208 bags, weighing 11 tons 14 cwt. 1 qr. 24 lbs., have been dispatched from the mine, containing 16,330 ounces of silver, and 3 tons 1 cwt. 1 qr. 11 lbs. of copper.

MOUNT ZEEHAN (Tas.).—Manager writes for week ended 27th April: Argent Section: Main Engine Shaft: No. 6 Lode, 30 feet Level South Stope: Ore raised 49 tons 8 cwt. good seconds and 2 tons firsts. Lode 1 foot wide of good seconds.—72 feet Level South: Drive extended 9 feet 6 inches, total 113 feet 6 inches. Ore raised 42 tons 18 cwt. fair seconds. Lode 7 feet wide.—72 feet Level North Stope: Ore raised 38 tons 17 cwt. fair seconds.—132 feet Level South: Drive extended 10 feet 6 inches, total 63 feet. A little ore is making, which yielded 5 tons 17 cwt. fair seconds.—132 feet Level North Stope: Ore raised 19 tons 10 cwt. good seconds. Lode 2 feet wide. West crosscut to No. 7 lode extended 9 feet, total 20 feet 6 inches. No. 3 lode No. 2 shaft sunk 3 feet, total 54 feet 8 inches. Owing to increase of water have had to procure larger pumps. Concentrator has been run 46 hours and milled 160 tons seconds for 31 tons 11 cwt. concentrate, containing about 22 tons 18 cwt. lead and 2223 ounces silver.

MILLS' DAY DAWN UNITED.—Mine manager's report for fortnight ending April 21: Main Underlie Shaft. Recommended sinking on Monday April 16; have sunk 6 feet; total depth from No. 8 plat, 32 feet.—8 Level West. Extended and timbered, 10 feet; at present in formation.—7 Level West. Extended 9 feet, carrying 12 feet of stone of fair quality. The reef above this level will average from 6 to 15 feet. Nearly all operations have been carried on in the footwall reef, which is good stone, and so far it is 21 feet between the walls.—7 Level (hanging wall) East: Driven 7 feet; reef 1 foot of fair quality. 7 level (hanging wall) going west to meet the above has been timbered ready to start to-day; total distance from cross cut, 157 feet.—7 Level East. Stopes carry from 2 to 5 feet of medium stone.—6 Level East. Stopes average 3 feet of good stone.—6 Level West (footwall). Driven and timbered 15 feet; the stopes carry from 1 to 3 feet of good stone.—Intermediate level between No. 5 and No. 6 levels: From 1 to 3 feet good stone.—5 Level East. Reef averages 6 feet.—5 Level West. The stopes carry from 2 to 4 feet of medium stone.—4 Level East. The stone averages 6 feet of poor quality.—4 Level West. Stopes show from 1 to 3 feet of medium stone. Stone raised (during the fortnight), 1780 tons.

TRANSVAAL GOLD EXPLORATION AND LAND.—The secretary writes:—Referring to our report of 7th inst., the figures for March and April are as follows: From battery, 630 ounces; from pans, 1932 ounces; from cyanide process, 1872 ounces; nuggets from ground to north of No. 24 ounces; total, 4158 ounces. The average assay value of all the ore mined during March and April was 2 ounces 1 dwt. per ton.

MOSMAN.—Mine manager's report for fortnight ending April 28: North Australian Mine, Byerley level south. Crosscut for Contee reef 5 feet for fortnight; rock hard, no indication of reef. Stopes appear about the same; usual quantity of stone raised 70 tons, quality not so good. Water less troublesome.—Wyndham Mine. 13 level north driven 26 feet, length from shaft 190 feet; formation 6 inches. 8 level winzeholed through to No. 9 level.—Stopes. 13 level south, reef 8 inches, worth 15 dwts.; 13 level north, reef 4 to 15 inches, worth 1 ounce; 12 level, reef 10 inches, worth 10 dwts.; 9 level, reef 6 to 20 inches, worth 1 ounce. Stone raised 160 tons.

OREGUM.—Superintendent's report for fortnight ending 31st May: Taylor's shaft has been sunk during the fortnight 6 feet, to a depth below the 460 feet level 106 feet. Lode 1 foot 6 inches, value 2 ounces 3 dwts. 13 grains per ton. 460 feet level south advanced 23 feet 6 inches, total 320 feet. Lode 2 feet 3 inches, value 1 ounce 8 dwts. 7 grains. No. 1 winze 460 feet level south sunk 5 feet 6 inches, total 21 feet 9 inches. Lode 1 foot 6 inches, value 2 ounces 10 dwts. 2 grains. No. 2 winze same level sunk 6 feet 6 inches, total 10 feet 6 inches. Lode 3 feet, value 3 ounces 3 dwts. 3 grains. No. 4 rise 280 feet level south 13 feet 6 inches risen, total 87 feet. Lode 6 inches, value 2 ounces 14 dwts. 10 grains.—Wallroth's Shaft: Up to now, a 6 inch plunger pole in this shaft has kept the water without any difficulty, but in consequence of the recent showers and an increase of water, we found it necessary to replace the 6 inch pole by an 8 inch one, which we completed yesterday. This has caused a delay in the deeper workings, and, in fact, the shaft cannot be measured for this report. The 760 feet level south has been advanced 12 feet 9 inches, total 161 feet 3 inches. Lode 1 foot 6 inches, value 13 dwts. 2 grains. No. 1 rise 760 feet level south 10 feet 3 inches risen, total 29 feet 9 inches. Lode 2 feet, value 9 dwts. 19 grains. 760 feet level north advanced 5 feet 9 inches, total 101 feet. Lode 3 inches, assaying 10 dwts. 21 grains per ton. No. 1 rise 760 feet level north commenced, 6 feet 6 inches risen. Lode 1 foot, value 8 dwts. 17 grains. 660 feet level south advanced 13 feet 6 inches, total 532 feet 6 inches. Lode 2 feet 4 inches, value 12 dwts. No. 1 winze 660 feet level south sunk 3 feet, total 56 feet 6 inches. Lode 2 feet 6 inches, value 1 ounce 21 grains. No. 2 winze same level sunk 3 feet 9 inches, total 39 feet 6 inches. Lode 1 foot, value 14 dwts. 4 grains. No. 3 winze sunk 4 feet 3 inches, total 23 feet 3 inches. Lode 1 foot, value 9 dwts. 19 grains. No. 2 rise 660 feet level south commenced 9 feet 9 inches risen. Lode 1 foot 6 inches, value 1 ounce 17 grains. No. 3 rise same level commenced, 5 feet risen. Lode 1 foot, value 1 ounce 3 dwts. 22 grains. No. 1 winze 660 feet level north sunk 4 feet 6 inches, total 52 feet 3 inches. Lode 4 feet, value 16 dwts. 8 grains. 560 feet level south advanced 18 feet, total 888 feet 3 inches. Lode 1 foot, value 1 ounce 17 grains. No. 2 winze 560 feet level south sunk 1 foot 6 inches, total 63 feet. Lode 6 inches, value 1 ounce 1 dwt. 19 grains. No. 3 winze same level sunk 1 foot, total 51 feet 3 inches. Lode 2 feet, value 1 ounce 2 dwts. 21 grains. No. 4 winze sunk 1 foot 6 inches, total 61 feet. Lode 2 feet, value 1 ounce 8 dwts. 7 grains. No. 5 winze sunk 4 feet, total 61 feet 6 inches. Lode 1 foot, value 14 dwts. 4 grains. No. 6 winze sunk 4 feet, total 57 feet 3 inches. Lode 1 foot 6 inches, value 15 dwts. 6 grains. No. 3 winze 460 feet level south sunk 3 feet, total 55 feet 6 inches. Lode 2 feet, value 5 ounces 3 dwts. 7 grains. Now communicated with 560 feet level. No. 6 winze same level sunk 2 feet, total 93 feet 6 inches. Lode 3 feet, value 2 ounces 9 dwts., also communicated with 560 feet level. No. 7 winze 460 feet level south sunk 3 feet, total 84 feet. Lode 1 foot 6 inches, value 1 ounce 12 dwts. 16 grains. Crosscut east commenced from the 280 feet level north to intersect fold 6 feet driven. We have struck the lode, and have cut into it 1 foot 6 inches, but no footwall yet. A sample from the hanging side gave 15 dwts. 6 grains per ton. 215 feet level north advanced 20 feet, total 379 feet. Lode 9 inches, value 1 ounce 7 dwts. 5 grains. Incline winze on fold 215 feet level north sunk 7 feet 6 inches, total 85 feet 6 inches. Lode 1 foot 6 inches, value 10 dwts. 21 grains. Low's shaft sunk 6 feet, total 575 feet 10 inches. 510 feet level south advanced 8 feet, total 131 feet. No lode. Level south on branch in crosscut west from 510 feet level advanced 4 feet, total 5 feet 3 inches. Quartz 8 inches wide, value 1 ounce 3 dwts. 22 grains. Probyn's shaft sunk 4 feet, total 973 feet 3 inches. 950 feet level south advanced 8 feet, total 103 feet. Lode 1 foot wide, value 1 ounce 2 dwts. 21 grains. No. 1 winze 950 feet level north sunk 4 feet 6 inches, total 31 feet. Lode 8 inches, assaying 1 ounce 1 dwt. 19 grains. 850 feet level south advanced 7 feet 9 inches, total 227 feet 9 inches. No lode. No. 1 winze 850 feet level south sunk 2 feet 9 inches, total 43 feet 9 inches. Lode 1 foot 6 inches, value 16 dwts. 8 grains. No. 1 rise 850 feet level south 1 foot 6 inches risen, total 56 feet. Lode 1 foot 3 inches, value 1 ounce 1 dwt. 19 grains. This rise has been communicated with No. 1 winze 650 feet level south. No. 2 trial shaft sunk 7 feet, total 245 feet. Lode 4 feet, value 1 ounce 19 grains. There are 40 stopes being worked throughout the mine which will be reported on the end of the month.

TASMANIA CROWN SILVER.—Manager's report dated May 2: Main Shaft No. 1 Level. Communication has been made to the Prospect shaft. The men have since been engaged in squaring down that shaft to No. 1 level, and opening out the ground to form a plat and put in frame sets so as to continue sinking. I have decided to do this to relieve the head of water from No. 2 level, and so enable us to drive into the lode at that point with greater security. A strong lode formation exists in the bottom of the shaft, 5 feet wide, consisting of carbonate of iron carrying a fair proportion of galena, coursing nearly north and south with a slight dip to the east. In sinking the shaft we shall carry this for some distance, and so be proving the value of the lode. On the east side of the shaft strings of ore appear to be going off in that direction. The value of these we shall be able to prove by crosscutting, which we shall do as soon as we are able. I am more hopeful with the prospects before us, and hope soon to be able to send you very favourable reports.—Prospect Shaft No. 2. The lode so far is going down in a promising formation, carrying strings of ore. The precautions we have taken to carry off the surface water, and prevent it getting down to the lower workings have so far been very successful.—Diamond Drill. This work has been going on without interruption since my last, except one day. The ground so far is very hard dolomite and progress slow. To date the distance driven is 17 feet 6 inches.—George R. Tilly.

NEW VIRGINIA.—The following advices have been received by mail from Captain Hodge, the company's mine manager in South Africa.—Curtis's Shaft. The fixing of boiler and steam Tangye pump has been completed; no time will be lost in getting down 60 feet, where we shall drive back and under Hodge's winze, and open up a good section of rich ground for stoping.—Watercourse. The cutting of the new section is being well pushed ahead by the contractor. The manager further adds, under date May 14: I am glad to say rich ore showing lots of visible gold has been coming from the trial shaft (Van Brandis section) all the past week, and there is no doubt we are laying open a rich piece of ground. I estimate at least 2000 tons already available at this one point for stoping as we drive south, we are daily adding to our dump, and our length of ore ground to stop out, and very cheaply too, seeing it is back of roof stoping, and mostly by pick work, costing very little.

CUMBERLAND GOLD.—April 4: Our operations during the month have been chiefly confined to baling. Owing to the unusually heavy wet season, the downfall of water from the surface has been continuous. A party of tributaries raised 57 tons of ore from above No. 4 level north, which has been crushed during the month, yielding 116 ounces 10 dwts. retorted gold. A slide of granite having come in, leaving only a few inches of reef, they are at present undecided as to expending further efforts in this direction. Now that the wet season is drawing to a close, I hope, if possible, to prospect for the leader mentioned in my last report.—(Signed) Anthony Gallagher.

The African Gold Recovery Company (Limited) announce that 50,850 ounces of gold have been recovered at the Rand, and 7000 ounces in the other districts, total 57,850 ounces during May by means of the MacArthur-Forrest cyanide process. The April total was 56,500 ounces.

EXPORT AND IMPORT TRADE.

THE BOARD OF TRADE RETURNS—MAY TABULAR STATEMENT.

Specially compiled for "The Mining Journal" from the Board of Trade Returns.

THE Board of Trade Returns for May show that the Imports amounted to £34,131,060, against £36,838,213 in the corresponding month of last year, showing a decrease of £2,707,153. The Exports for last month were £17,484,212 compared with £17,822,460, being a decrease of £338,248. The Imports for the five months ended May amounted to £176,798,544 against £165,856,568 in the same period last year, being an increase of £10,941,976. The Exports for the five months were £88,974,320 against £88,992,669, being an increase of £18,349.

EXPORTS—SUMMARY OF INCREASES AND DECREASES.

PRINCIPAL AND OTHER ARTICLES.	QUANTITIES.		VALUES.	
	INCREASE.	DECREASE.	INCREASE.	DECREASE.
Raw Materials:				
Coal and Patent Fuel ... Tons	794,361	—	£259,340	£
Coal, &c., shipped for steamers ... Tons	85,951	—	—	—
Metals:				
Brass, and manufactures of ... Cwts.	1,589	—	1,073	—
Copper, unwrought and wrought ... Cwts.	—	46,125	—	124,480
Hardware and cutlery & implements and tools, and parts thereof ... Tons	—	—	—	31,384
Iron, unwrought and wrought ... Tons	—	—	—	2,067
Lead, pig, rolled, &c. ... Tons	—	48,515	—	281,303
Plate, and plated gilt wares & telegraph wires, &c. ... Tons	—	2,541	—	30,559
Tin, unwrought ... Cwts.	—	4,739	—	2,798
Zinc or Spelter ... Tons	—	2,301	—	30,236
Other articles ... £	—	—	1,285	—
Total ...	—	—	76,948	506,123
Machinery:				
Steam engines ...	—	—	£9,558	—
Other descriptions ...	—	—	57,885	—
Total ...	—	—	127,443	—
Alkali ... Cwts.	—	90,391	—	39,768
Cement ... Tons	—	4,132	—	6,775
Products of coal ... £	—	—	—	12,438

EXPORTS—BRITISH AND IRISH PRODUCE.

PRINCIPAL AND OTHER ARTICLES.	QUANTITIES.		VALUES.	
	Month ended May 31.	Month ended May 31.	Month ended May 31.	Month ended May 31.
	1893.	1894.	1893.	1894.
	Cwts.	Cwts.	£	£
Metals and Articles Manufactured therefrom (except Machinery):				
Brass, and Manufactures of, not being Ordnance ...	10,143	31,732	40,063	41,136
Copper: Unwrought, in Ingots, Castings, or Slabs, and Precipitate:				
To Germany ...	18,656	10,268	45,787	22,565
" Holland ...	18,170	8,326	41,880	19,950
" Belgium ...	3,089	1,781	7,500	4,000
" France ...	14,548	8,797	35,712	19,415
" Italy ...	2,001	4,833	5,005	10,322
" British East Indies ...	92	—	240	—
" Other countries ...	11,607	3,381	28,286	7,374
Total ...	69,168	37,180	165,360	82,672
Wrought, or Manufactures, Unenumerated:				
To Sweden and Norway ...	1,012	2,150	3,225	6,061
" Germany ...	1,445	873	4,271	2,952
" Turkey ...	4,069	3,258	13,682	8,809
" Egypt ...	3,075	3,416	8,717	9,91
" Brazil ...	2,168	3,085	6,414	8,319
" British East Indies ...	8,227	1,814	22,040	4,488
" Australasia ...	430	938	1,423	2,902
" Other countries ...	8,658	7,594	17,598	33,031
Total ...	26,746	23,082	77,370	64,803
Mixed or Yellow Metal:				
To China and Hong Kong ...	3,896	3,130	9,106	6,578
" British East Indies ...	17,631	8,216	39,957	17,057
" Other countries ...	7,157	5,363	18,168	14,361
Total ...	28,684	17,299	67,231	37,996
Total of Copper ...	123,596	77,471	309,951	185,471

PRINCIPAL AND OTHER ARTICLES.	QUANTITIES.		VALUES.	
	Month ended May 31.	Month ended May 31.	Month ended May 31.	Month ended May 31.
	1893.	1894.	1893.	1894.
	Tons.	Tons.	£	£
Iron and Steel: Pig-iron:				
To Russia ...	16,840	10,769	41,686	29,157
" Sweden and Norway ...	4,418	3,541	8,435	7,103
" Germany ...	2,830	2,338	4,959	5,778
" Denmark ...	25,236	22,765	50,547	46,135
" Holland ...	11,870	7,041	24,603	15,480
" Belgium ...	3,230	2,430	7,068	5,577
" France ...	3,971	2,850	9,463	6,668
" Portugal, Azores, and Madeira ...	435	319	969	861
" Spain and Canaries ...	1,264	2,418	3,347	5,717
" Italy ...	12,102	10,073	24,633	23,981
" United States ...	5,846	1,65	31,641	3,981
" Australasia ...	2,425	1,095	5,823	2,498
" British North America ...	1,814	951	4,933	2,433
" Other countries ...	2,792	4,153	7,655	11,377
Total ...	94,903	71,425	228,041	168,044

PRINCIPAL AND OTHER ARTICLES.	QUANTITIES.		VALUES.	
	Month ended May 31.	Month ended May 31.	Month ended May 31.	Month ended May 31.
	1893.	1894.	1893.	1894.
	Tons.	Tons.	£	£
Bar, angle, bolt, and rod ...	10,770	11,397	68,288	70,224
Railroad of all sorts ...	52,417	46,759	229,264	205,075
Iron and steel wire, &c. ...	3,088	2,444	58,823	52,084
Galvanized sheets ...	12,974	14,282	157,277	164,416
Hoops, plates, boiler plates, &c. ...	14,376	14,799	120,519	116,836
Cast and wrought iron, &c. ...	25,442	20,891	312,754	278,146
Old, for re-manufacture ...	15,243	7,780	42,086	20,611
Steel, unwrought ...	16,745	16,857	165,436	155,089
Manufactures of steel, or of iron and steel combined ...	1,901	1,118	46,661	34,448
Total of iron and steel ...	265,429	238,974	1,927,819	1,646,516

PRINCIPAL AND OTHER ARTICLES.	QUANTITIES.		VALUES.	
	Month ended May 31.	Month ended May 31.	Month ended May 31.	Month ended May 31.
	1893.	1894.	1893.	1894.
	Tons.	Tons.	£	£
Tin Plates and Sheets:				
To Russia ...	2,405	33	79,039	525
" Germany ...	391	513	5,021	6,303
" Holland ...	353	514	5,027	7,028
" France ...	739	1,084	9,727	13,414
" Portugal, Azores, and Madeira ...	713	203	9,184	3,540
" Italy ...	292	263	3,356	2,327
" Roumania ...	399	905	5,583	12,313
" United States ...	26,980	31,241	353,452	260,258
" Brazil ...	417	340	5,482	3,967
" Argentine Republic ...	209	290	2,651	3,222
" British East Indies ...	571	518	7,102	6,865
" Australasia ...	588	1,272	6,327	15,490
" British North America ...	1,349	1,256	28,278	14,734
" Other countries ...	1,851	2,443	23,911	31,347
Total ...	37,470	30,962	494,650	381,743

PRINCIPAL AND OTHER ARTICLES.	QUANTITIES.		VALUES.	
	Month ended May 31.	Month ended May 31.	Month ended May 31.	Month ended May 31.
	1893.	1894.	1893.	1894.
	Tons.	Tons.	£	£
Lead: Pig Sheet, Piping, and Manufactures:				
To Russia ...	6,523	3,524	61,758	34,833
" Germany ...	147	599	1,808	5,545
" China and Hong Kong ...	311	251	2,189	2,432
" Japan ...	172	48	1,468	722
" United States ...	150	8	1,500	98
" British East Indies ...	709	419	10,877	6,429
" Australasia ...	102	35	1,146	390
" British North America ...	390	95	4,058	975
" Other countries ...	745	1,179	5,585	12,263
Total ...	8,909	6,265	94,130	63,571

BRITISH AND IRISH PRODUCE—Continued.

PRINCIPAL AND OTHER ARTICLES.	QUANTITIES.		VALUES.	
	Month ended May 31.	Month ended May 31.	Month ended May 31.	Month ended May 31.
	1893.	1894.	1893.	1894.
	Cwts.	Cwts.	£	£
Plate and Plated & Gilt Wares:				
Telegraphic Wires, & apparatus connected therewith ...	—	—	24,886	22,088
Tin, Unwrought:				
To Russia ...	3,502	2,357	16,740	8,840
" Sweden and Norway ...	657	572	3,192	2,181
" Germany ...	634	530	2,998	1,949
" France ...	1,305	968	6,220	3,706
" Turkey ...	1,038	317	4,988	1,208
" United States ...	442	4	1,148	18
" British North America ...	299	270	1,477	1,045
" Other countries ...	4,622	2,738	22,097	10,821
Total ...	12,499	7,780	59,740	29,504
Zinc or Spelter: Unwrought and Wrought ...	15,111	17,810	12,215	8,919
Total of Principal Articles ...	—	—	2,776,617	2,346,157
Other Articles ...	—	—	69,590	71,275
Total of Metals and Articles Manufactured therefrom (except Machinery) ...	—	—	2,846,207	2,417,432
Alkali ...	501,453	461,062	219	129,657
Cement ...	43,988	49,120	74,481	81,256
Products of coal (including paraffin, petroleum, &c.) ...	—	—	—	—
Total ...	—	—	125,304	112,864

MACHINERY.

PRINCIPAL ARTICLES.	QUANTITIES.		VALUES.	
	Month ended May 31.	Month ended May 31.	Month ended May 31.	Month ended May 31.
	1893.	1894.	1893.	1894.
	Tons.	Tons.	£	£
Mining:				
To Countries in Europe ...	—	—	825	5,379
" United States ...	—	—	—	136
" Countries in South America ...	—	—	5,535	1,365
" British Possessions in S. Africa ...	—	—	10,766	13,

THE GLASGOW CHAMBER OF COMMERCE AND THE CURRENCY QUESTION.—At a meeting of the directors of the Glasgow Chamber of Commerce, on Monday, Mr. Walter Duncan presiding, Mr. George Handasyde Dick called attention to the report of the Chamber for 1893, which contained the following motion which he had brought before the Chamber:—"That in pursuance of the policy of the Chamber, as agreed to at a special general meeting on November 14 last, the Chamber petition Government in favour of the reassembling of the International Monetary Conference at Brussels; further, that this Chamber expresses approval of the memorandum of instructions to the delegates of Great Britain issued from the Treasury under date November 15 last, and petitions Government to appoint delegates who will loyally carry out the same." Mr. Dick said the subject of bi-metallicism had been recently very much before the country, and he would like to bring the foregoing motion again before the Chamber if he could be assured that they were likely to look at it sympathetically, and that it would not be received in a spirit of hostility. There had been a great change of opinion on the subject, but if the motion were to give rise to any adverse discussion he would rather not bring it forward. The Chairman pointed out that the motion had been defeated 18 months ago, and said he did not think that in the interval they had been sufficiently educated to take a sympathetic view of it, as Mr. Dick wished. Mr. Tallis said he did not object to Mr. Dick tabling the motion. The Chairman assured Mr. Dick that there was no desire to limit his liberty, but he had limited it himself by asking that he should be assured of a sympathetic reception. Mr. Dick said that by "sympathetic" he simply meant that his motion should be received in a kindly way. Hitherto his motions on the subject had simply been ruffed down and trodden under foot. The Chamber had not yet entered upon the outside margin of this question. The Chairman thought there would be different opinions on that point. Mr. Dick said that if the Chamber did not wish to discuss the motion sympathetically, and arrive at the truth of the question, he did not wish it discussed at all. The Chairman hoped it would not go forth that there were any members of the Chamber who desired anything else than the truth upon this question. If they happened to differ from Mr. Dick in the conclusion they arrived at, he did not think that Mr. Dick was in order in assuming that they were simply trampling down what he put forward otherwise than by the force of reason. Mr. Dick said that if they would not listen to reason, and only heard one side of the story, they were only blinding people. The subject was then departed from.

THE INFLUENCE OF SILVER ON TIN.—To the already large and unanswerable testimony of practical observers to the influence of the depreciation of the gold price of silver in lowering the gold prices of other commodities must now be added that of Mr. Duncan D. Fraser, the British acting consul at Batavia. In his report on the trade of Java, just issued, Mr. Fraser gives the following table, showing the decline in the price of Biliton tin, in terms of Dutch currency at the bi-monthly auctions during the past year, with the quantities offered:—

	Quantity. Pounds.	Ave. price, Fl. c.
February 22.....	16,017-80	63 46
April 29.....	16,733-13	62 52
June 28.....	14,041-79	59 8
August 30.....	13,016-38	55 3
October 25.....	13,020-21	54 95
December 20.....	13,051-56	52 9

Total..... 85,880-87 57 85

It appears from this that during the course of the year there was a fall of 18 per cent. The price is quoted in silver florins, and it must be explained that the silver florin in Java, as well as in Holland, is a token coin, having a definite relation to the 10 florin gold piece, the free coinage of silver having been suspended, and the silver florin being legal tender alike in the Netherlands and Netherlands India. Under these circumstances it may be asked: Why should a fall in the gold price of silver affect the price of Biliton tin? Mr. Fraser gives the answer. It is, that the gold price of silver has made imports of Straits tin into Europe possible at much reduced rates, and this has enforced a decline in the price of tin from the Dutch possessions. —*Cornish Telegraph.*

COAL DUST IN MINES.—The report of the Royal Commission on Coal Dust in Mines will shortly be sent to the Queen for approval, and will thereafter be submitted to Parliament and published. The Commission was presided over by Mr. Chamberlain, and the report, which is unanimous, is regarded as likely to prove useful in leading to a diminution in the disastrous effects of colliery explosions.

OCEANA TRANSVAAL LAND COMPANY.—An extraordinary general meeting of the Oceana Transvaal Land Company (Limited) was held yesterday at the Cannon-street Hotel for the purpose of submitting for confirmation resolutions passed at a previous meeting, increasing the capital of the company to £400,000 by the creation of 200,000 new shares of £1 each, and changing the name of the company to "The Oceana Company (Limited)." Mr. C. A. V. Conybeare, M.P., who presided in the absence of Mr. Pasteur, moved the confirmation of the resolutions in two sentences, which was seconded by Mr. F. R. Bullock, and carried unanimously.

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GEOLOGY AND MINERALOGY OF SHASTA COUNTY.

By HAROLD W. FAIRBANKS, F.G.S.A.
From the Californian State Mineralogist.

IX.

(Continued from page 629.)

SOFT shales become the prevailing rock $1\frac{1}{2}$ miles west of the Fisheries. They are cut by many dykes of diorite, and farther west by diabase. Although very irregular in strike and dip, there is certainly no break between these shales and the highly metamorphosed rocks on the McCloud.

It is to be noted that the apparent slight degree of metamorphism shown by the shales is no sure indication that they have not been subjected to metamorphosing influences, for in many cases, action which will harden quartzose rocks and sandstones will have apparently but little effect on clayey rocks, owing to their impenetrability. In addition, slates and shales soften near the surface, while more quartzose rocks maintain their solidity.

Near the summit we find the shales in contact with hard sandstones, which are almost metamorphosed to quartzites. On Salt Creek is a body of quartz feldspar porphyry, in the decayed portions of which the

Idiomorphic Crystals

stand out finely. The summit of the divide is 1600 feet. At the Sacramento bridge it is 1100 feet.

The western slope of the hills forming the divide is very barren; the trees are few, and the soft shales decay and wash away so easily that in many places even brush does not grow. For some miles after leaving the McCloud the shales strike in a north and south direction, dip east, and as the Sacramento is approached they strike east and west, dip north at a small angle. Near the bridge they are greatly broken and crushed. They are chiefly black slates, with frequent strata of dark quartzite and quartzose conglomerates. They assume all position in strike and dip in the course of a few rods.

The quaternary gravels on which Redding is situated give place,

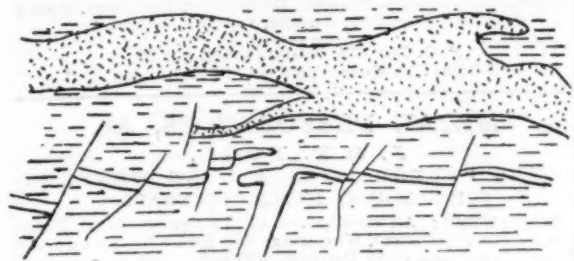


FIG. 2.

about a mile up the Middle Creek Road, to small outcrops of sandstone, probably cretaceous. This is followed by the auriferous series, which outcrops along the river for about a mile south of Middle Creek. It consists largely of massive rocks, dark and fine-grained, and often showing faintly

Amygdulæ of Calcite

and other minerals. The rock varies from chlorite schist, through dark intermediate varieties, to a syenite with distinct hornblende crystals. The greater part is intrusive, but there are places where there is a distinct sedimentary structure; strike north and south, dip 80° to the east. Along Middle Creek there are good exposures, and the eruptive nature of at least a part of these rocks is shown. Figure 2 shows an irregular dyke, which is scarcely distinguishable from the rock it intersects, save for its strongly marked boundaries. A peculiarly faulted quartz vein lies near it. This dark rock gives place to a coarse granitic one with large quartz veins, chlorite, and a little feldspar. The granite appears perfectly massive, though showing the effect of great crushing. It begins as bunches and ramifying dykes, and finally becomes the country rock. It extends along the creek as far as Shasta. It is sometimes replaced by dark chloritic dykes. Irregular and bunched quartz veins are to be seen, and in these prospecting has been done. The granite is very rich in quartz, and though no fresh hornblende appears in it here, yet from the shape of the chloritic bunches, they were undoubtedly derived from hornblende; making the rock originally a hornblende granite, undoubtedly of an intrusive nature, but at present reduced to the extreme stage of decomposition. As before mentioned, this rock is identical in character with that at the ferry on Pitt River. South of Shasta this granitoid rock contains less feldspar and more chlorite, forming

A Massive, Dark Green Rock,

rich in quartz. There is no apparent bedding, but occasional strata of softer rock; strike north 25° east, dip 80° south east. Near Centerville, and from there westward, the rock shows plainly a strike north 65° west, dip 80° north east.

Two miles south of Shasta is the Thompson Mine. There is a large vein here, carrying rich sulphurets and free gold; direction north 20° west, dip 45° north east.

At Centerville is an old river channel running nearly north and south. A shaft of 100 feet has not touched bottom. Bed rock appears on both sides, giving a channel between 200 and 300 feet wide. In the early days Middletown and Centerville were towns of considerable size, supported by extensive placer diggings, but now their locations can hardly be recognised. South of the Muletown Mountains the rocks are metamorphic schists; strike north 75° west, dip 80° north. About Muletown there is an interesting series of formations to be studied. Extensive and rich placers were worked here in the early days, but as yet no extensive quartz mining has been successfully undertaken. On the northern end of the mountain the rock is similar to that south of Shasta. In places it contains but little chlorite, and blends towards the south into an almost pure massive quartzite. More study is necessary to determine the relation between this apparent quartzite and the chlorite granite. Hornblende, chloritic, and talcose schists replace this rock on the southern end of the mountain; strike often a little south of west. On the western side of the mountain are dykes of a beautiful porphyritic diorite. These have a north and south direction. Similar dykes are also found on the north-eastern side of the mountain. The porphyritic diorites on the west slope have been intruded in the quartzites, which narrow to a point towards the south, and which have on the east, running nearly north and south, dykes of syenite and light-coloured quartz porphyry. The dykes are followed southward by dark massive felsitic rocks, while syenite occurs on the west.

(To be continued.)

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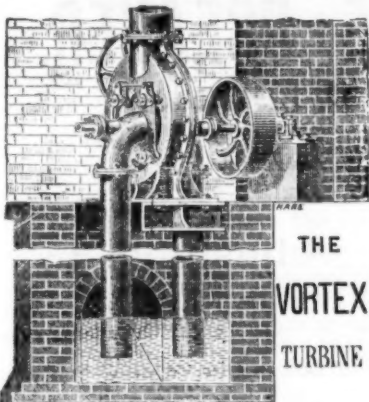
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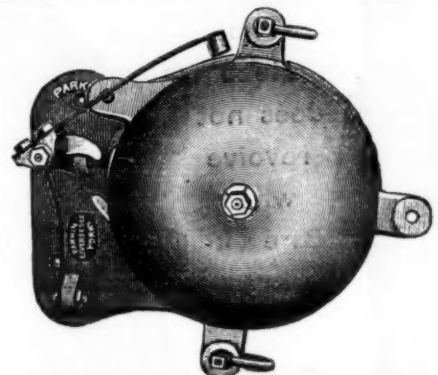
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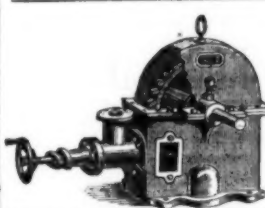
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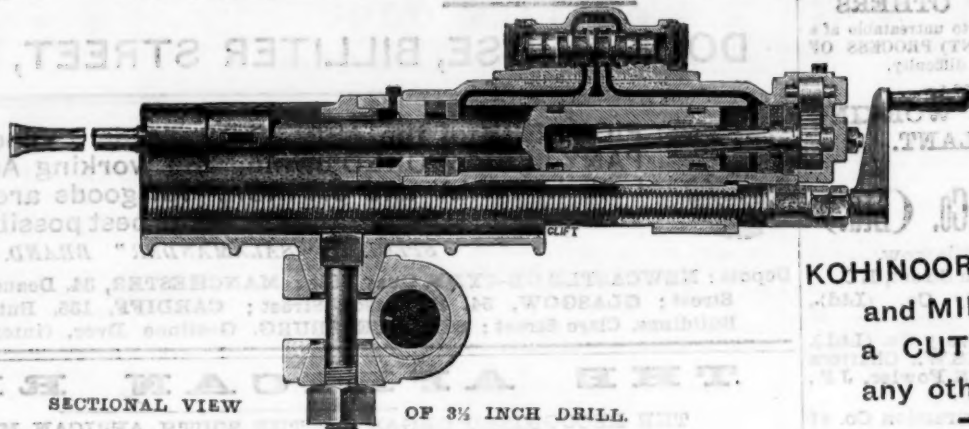
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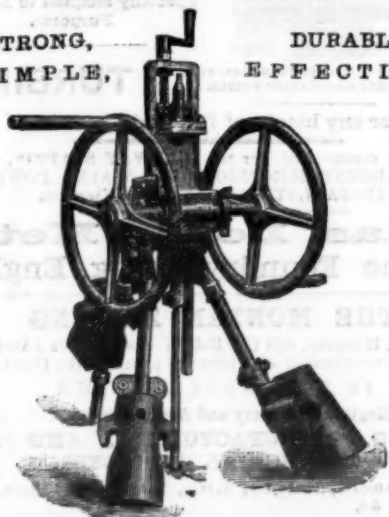
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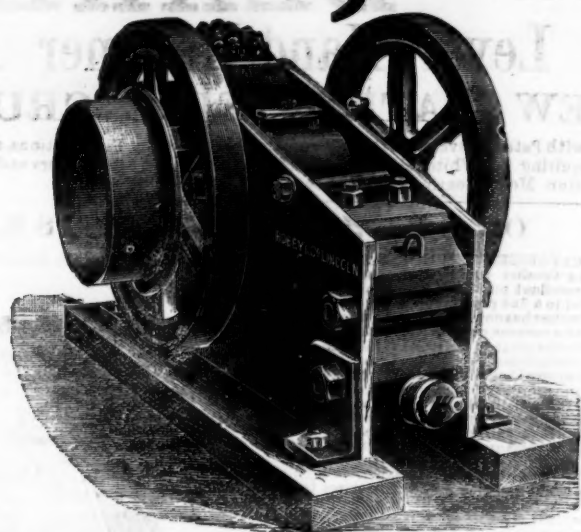
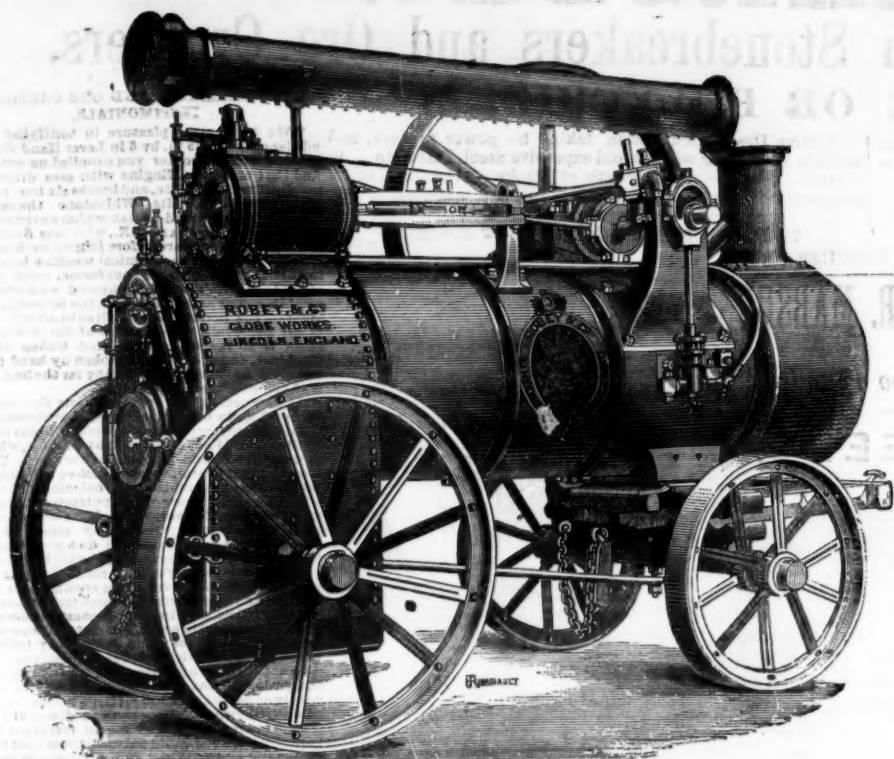
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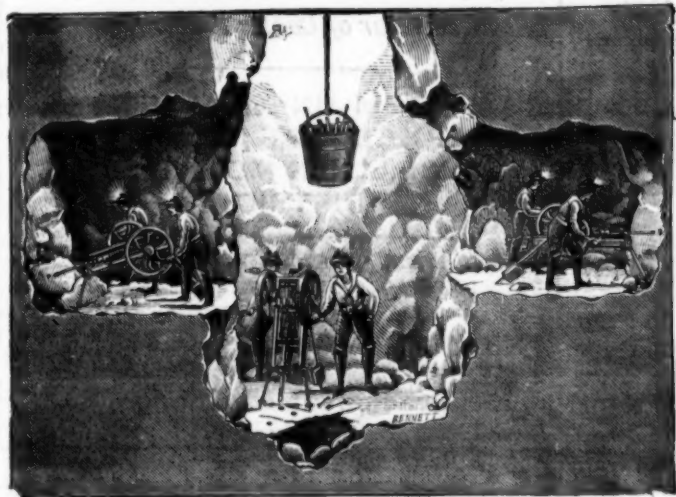
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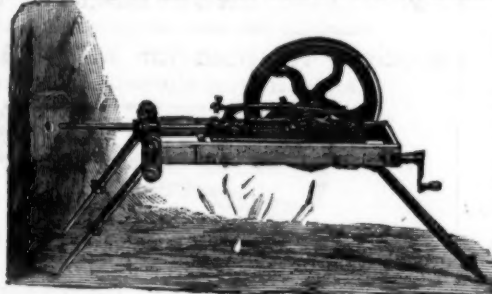
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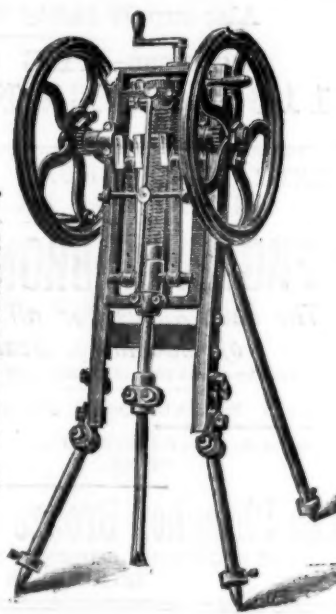
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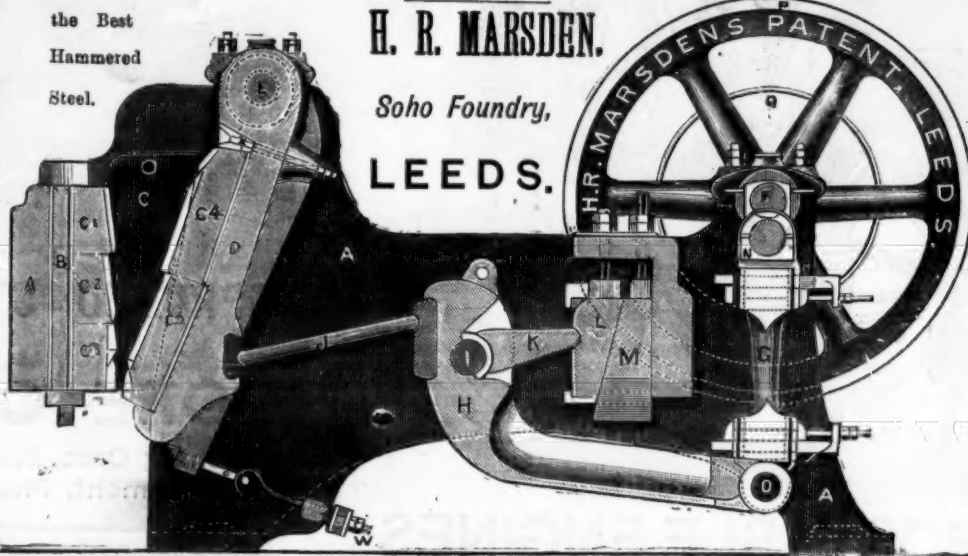
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